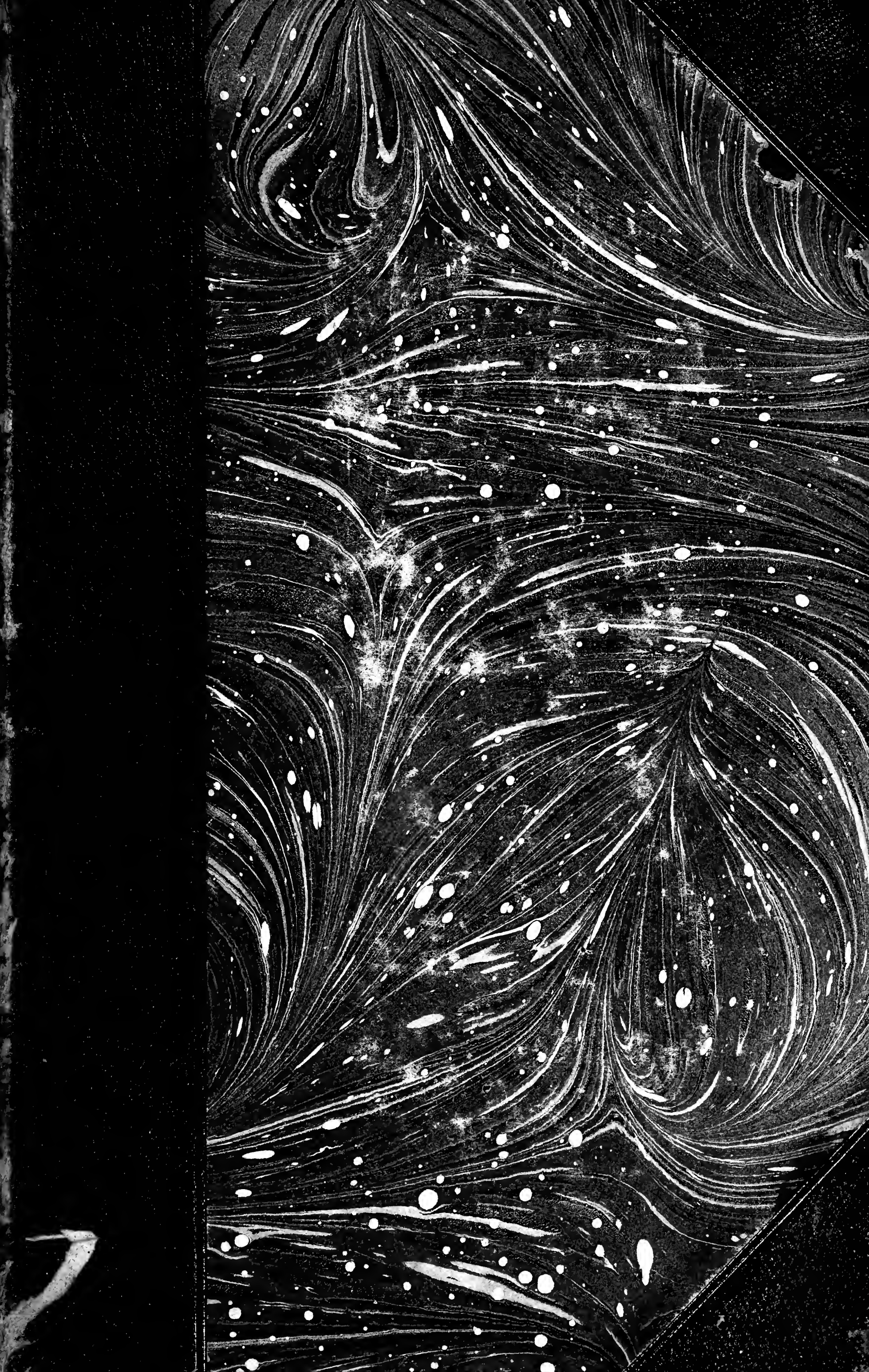


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Beurré d'Anjou.

CHROMO-LITHOGRAPHED BY F. WALLER. 18, HATTON GARDEN

THE
FLORIST AND POMOLOGIST;

A PICTORIAL MONTHLY MAGAZINE

OF

FLOWERS, FRUITS, AND GENERAL HORTICULTURE.

CONDUCTED

BY ROBERT HOGG, LL.D., F.L.S.,

ASSISTED BY MR. THOMAS MOORE, F.L.S.,

AND NUMEROUS ABLE CONTRIBUTORS.

1866.

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THE
FLORIST AND POMOLOGIST.

BEURRÉ D'ANJOU PEAR.

WITH AN ILLUSTRATION.

THE fruit which we now figure under the name of Beurré d'Anjou is not the same as Brown Beurré, of which the same name is a synonyme, but another and a very different variety that was introduced by Mr. Rivers under that name. It is, we are informed, the *Nec Plus Meuris* of the French nurseries, and was received from Messrs. Jamin et Durand, of Bourg-la-Reine, under that name; but it is totally distinct from the *Ne Plus Meuris* of Van Mons. I cannot discover the origin of this variety, and I am therefore constrained to adopt the name that has been given to it in the French collections; but it is a most unfortunate one, seeing that it is liable to add to the already great confusion of nomenclature that pomologists have to contend with.

It is some years since this excellent Pear was brought to my notice by Mr. Rivers; and I have since found on every occasion that I have met with the fruit, that on account of its handsome appearance as well as the superiority of its flavour, it is a variety of the greatest excellence, or, as Mr. Rivers expresses it to me, "remarkable for the clearness and beauty of its fruit."

The fruit is fragrant, large, even and regular in its outline. Skin smooth, and not at all rough to the feel; on the shaded side pale straw yellow, dotted all over with rather large freckles of russet; and on the side exposed to the sun it has a bright crimson cheek, freckled with russet, and strewed with dots of the same. There is also a crust of russet round the stalk. Eye very small and open, with very short erect segments, set in a very shallow depression. Stalk very short and stout, inserted on the apex of the fruit, with occasionally a large fleshy lip on one side of it. Flesh yellowish, tender, buttery and melting, very juicy, sweet, and richly flavoured.

A first-rate Pear, of delicious flavour. Ripe in December.

The tree is a very robust grower on the quince, forming a handsome pyramid, and bears well in the warmer situations of England as a pyramid, bush, or espalier. When trained against a wall in warm climates its flavour is often deteriorated, although its size and beauty are increased. In common with some of our finest kinds of Pears it is not always up to its character in flavour, but is never inferior. On the whole, it is to be reckoned amongst our choice Pears.

H.

THE NEW CHRYSANTHEMUMS.

I must confess at the outset that *all* the new Chrysanthemums I have seen of the past autumn are in the hands of Mr. Salter, of Hammersmith. There will be others, but I have neither seen nor heard of them, and I regret I cannot give them in this paper. Mr. Salter has, as usual, some superb flowers. It is a rich treat to walk through his houses in the month of November, if it were only to see what can be made of the Chrysanthemum as a plant for conservatory decoration. You are struck with the great variety of shades, with the brilliancy of colour that has in late years been attained, and with the massiveness of many of the flowers. The flowers recently exhibited at the Guildhall, at the meeting of the United Horticultural Society, were thought by more than one or two persons to be Dahlias, and in size at least they are approaching them; but kindly allowance must be made for the pure cockney element that would visit a show in the heart of "London's rich and famous town." Mr. Salter's annual show of Chrysanthemums in November is as attractive to the florist as the Lord Mayor's Show of the same month is to the citizens; and I propose to give a few brief notes, first of the new flowers, and then of a few that were sent out in 1864-65.

I take Gloria Mundi to be the finest flower of the year. Its colour is brilliant golden yellow: the flower is beautifully incurved, has a very high centre, and is a model of form. Another splendid yellow flower is Golden Ball: it is a deep golden colour, is also finely incurved, and is of great size. To each of these flowers the Floral Committee awarded first-class certificates of merit. Next in point of merit are Golden Beverley, a sport from the white flower of that name, bright canary yellow colour, and finely incurved; and Hereward, rosy crimson, with silvery backs to the petals, which are finely incurved. These two received second-class certificates from the Floral Committee. Other new flowers are Rose Leach, one of the recurved flowers, colour very delicate peach, a very pleasing shade; John Salter, golden yellow, but when fully incurved the colour is a reddish cinnamon—a fine and very beautiful flower; Countess of Granville, pearly white, a good-sized and beautiful flower; Crimson Velvet, a splendid flower, colour glowing crimson, brilliant, and smooth—a "beat" on all the flowers of that shade of colour; Compactum, a very pretty and compact flower, colour silvery rose, finely incurved; Fulgidum, dark red, glowing into bright red—a very striking and somewhat novel incurved flower; Empress Eugénie, delicate lilac peach, a large flower, and finely incurved; Ondine, very delicate peach, quite new in colour, and having the centre tinged with citron, a large incurved flower; and Titania, bright rosy carmine suffused with cream, darker in colour, and much better than Ariadne. This list does not include all the new flowers Mr. Salter will send out in the spring, but simply all he had named up to the time that I paid him my annual visit.

Of last year's flowers the following were very fine:—Alba Multiflora, a good-sized incurved white flower; Aurea Multiflora, pure yellow, very bright and incurved; Eve, sulphur yellow, of a delicate colour, and finely incurved; Golden Dr. Brock, a sport from the reddish orange Dr. Brock, a beautiful incurved flower of a bright golden yellow colour; King of Denmark, bright rosy lilac, a fine exhibition flower, also incurved; and Venus, delicate lilac peach, a large flower, finely incurved. Of older flowers I saw splendid specimens of Antigone, white, finely incurved; Antonelli, incurved, colour salmon orange, a fine show flower; Carissima, ivory white with rose markings, finely incurved; Dr. Brock, reddish orange, incurved and very fine; Duc de Conigliano, a large red-coloured recurved flower, very showy; Edwin Landseer, rosy ruby colour, large and very fine; Etoile Polaire, a finely incurved golden

yellow flower; General Bainbrigge, orange amber with golden centre, a large and beautifully formed incurved flower; Jardin des Plantes, bright golden orange, splendid colour, and flowers finely incurved; Lady Slade, delicate lilac pink with blush centre, finely incurved; Lalla Rookh, dark ruby rose, a very close incurved flower; Lord Palmerston, amaranth, suffused with rose, and tipped with silvery blush, a distinct and finely incurved flower; Mulberry, dark mulberry, a small flower, but the colour very good, also incurved; Oliver Cromwell, dark chestnut, fine and incurved; Prince Alfred, a splendid flower, very large and full, colour rosy crimson, finely incurved; Princess of Wales, pearly white, delicately tinted with rose, very large, of exquisite form, and finely incurved; and Sir Stafford Carey, dark brown chestnut with golden points, large, and very finely incurved.

New Pompone flowers are represented only by Prince Victor, much darker and finer than Bob, the colour rich maroon; and the hybrid class by White Trevenna, a sport from the pink Trevenna, having neatly formed flowers of a pure white colour. The Anemone section has one new representative only—Prince of Anemones, a large flower of good form, colour pinkish rose.

The following are very fine Pompone flowers—viz., Capella, dark red chestnut with orange centre; Florence, dark cherry, very fine; and Miranda, a fringed bright rose flower, extra fine, and fragrant like the Violet; while many others are valuable either as border flowers or for conservatory decoration.

I fear that the Japan flowers recently introduced by Mr. Fortune will scarcely become favourites with any of us. They are loose ungainly-looking things, and the colours are by no means attractive, and the less said about their form the better. They may possibly be by-and-by turned to account by the hybridiser; but as a class, unless there can be some very marked improvement made in them, they will soon be left stranded on the shores of the past.

Quo.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

Dec. 5th.—Thanks to Mr. Veitch, this meeting was made very interesting by a display of flowering Orchids and some other plants. Of the former there were the beautiful rose-flowered hybrid *Calanthe Veitchii*; *Cattleya Dominiana*, with handsome lilac flowers; *Dendrobium Tattonianum*, and several beautiful varieties of *Lycaste Skinneri*. Of other plants not the least interesting were *Thibaudia macrantha*, “with large, waxy, pinkish flowers, barred crossways with crimson,” extremely novel; *Rhododendron Princess Alexandra*, with wax-like blossoms of a delicate flesh colour; a *Sonerila margaritacea*, with large white blotches on the leaves; *Manettia micans*, several specimens of which were in three-inch pots, in which they blossomed very freely, and it looked a valuable basket plant, as they were covered with bright scarlet blossoms; *Eriocnema marmorea*, very beautifully marked; some half-standard *Epiphyllums* in variety, &c. Messrs. Lucombe, Pince & Co. received a first-class certificate for a very handsome variety of *Polystichum angulare*, called *parvissimum*, one of the most interesting things in the exhibition. A large collection of plants came from the Society’s garden, in which were various *Cypripediums*, *Barkeria Skinneri*, the charming little *Sophranitis grandiflora*, *Lycaste Skinneri*, a variety of *Odontoglossum*, sent home by Mr. Weir, the Society’s collector; *Dracaenas*, *Crotons*, *Musa coccinea*, *Hibiscus Cooperi*, and some dwarf, robust, and very healthy plants of *Poinsettia pulcherrima*, with heads of a beautiful vermilion scarlet hue.

But very little was produced for the Fruit Committee. From Mr. Vair, gardener to Lady Dorothy Nevill, came a fruit of *Monstera deliciosa*, which

was found on trial to be extremely luscious and excellent in flavour. From Mr. A. Parsons, of Danesbury Gardens, came a collection of Pears; and from Mr. Myatt, of Deptford, came a very good seedling Pear.

Dec. 19th.—This meeting was made exceedingly interesting and very attractive by the presence of a fine display of varieties of *Lycaste Skinneri* in great variety, the tips of some of the flowers being beautifully marked. There were as many as fifty-three specimens, and no two of them could be said to be exactly alike. Besides this group there were the following plants of Orchids in flower:—*Barkeria Skinneri*, *Barkeria Skinneri atropurpurea*, the latter being much deeper in colour, and *Dendrobium Tattonianum*. Also the following blooming plants:—*Rhododendrons* *Princess Alexandra* and *Princess Helena*, the latter pink, veined with carmine, the tubes of the flowers being bright carmine; a small plant of the curious *Thibaudia macrantha*, having seven flowers; and *Urceolina aurea*, called a yellow *Eucharis*, with foliage greatly resembling *E. amazonica*, but the flowers are of a different shape. They were of a clear yellow colour, and the plant itself was introduced by Mr. Veitch from Peru a year or two ago. There were also plants of *Aucuba japonica vera* with clusters of bright red berries of a large size; also *A. japonica variegata*, and *A. longifolia*. A collection of plants also came from the gardens of the Society, and with them cut sprigs of *Chimonanthus fragrans*, and the variety *grandiflorus*, both extremely fragrant. This favourite wall plant seldom seeds, and the large-flowered variety appears to have been obtained from cuttings struck from *C. fragrans*.

But little fruit was produced. From Mr. Rivers came some excellent Tangerine Oranges; and by G. F. Wilson, Esq., the Chairman of the Fruit Committee, were produced some fine Chaumontel Pears from a tree in a pot, grown in an orchard-house, and moved outside to ripen the fruit.

R. D.

SCARLET PELARGONIUMS—BEATON'S RACE.

THE first instalment of the rich legacy left to the horticultural world by the late Mr. Beaton has now been placed fairly before the public, and the verdict is one of general approval.

Donald Beaton, like others in life, had his detractors; but if an honest heart, uncommon industry, and more talent than he had tact to turn to account, entitle a man to the respectful remembrances of his fellows, then his friends need not trouble themselves about his fame.

Some of his hybrid Pelargoniums, the result of many years' thought and labour, he did not live to see bloom. Masses of selected kinds were planted out in my nurseries at Waltham Cross about the end of May last, and have been seen there by many leading horticulturists, both amateur and professional. They have also been grown in limited quantities at Battersea Park, at the Royal Gardens at Kew, at Chiswick, and at Kensington, and the managers of these establishments have given the best evidence of their opinion of them by intimating their intention of using them extensively in their arrangements for the forthcoming year. The criticisms ingenuously and sometimes, I fear, disingenuously, put forward that the flowers are deficient in form (which by the way only applies to some of them), does not affect their value one jot. Who, when looking on the glorious masses produced by *Stella*, to which race these hybrids principally belong, would think of descending to the minute criticism of a single flower? But it is the custom with some to depreciate what they do not possess, and I am obliged to hear that some of the loudest detractors, who were at the same time large buyers, having now raised a stock, are begin-

ning to acknowledge their mistake! This, I suppose, they would designate a clever business "move." As far as I am concerned they are welcome to all the benefits they may derive from it; and I accept their recantation in good faith, because it is better that they should "repent" than "continue in sin."

To those who have but one standard of beauty, the florist's standard requiring the circular form, Donald Beaton, Princess Lichtenstein, and Mrs. William Paul, may be recommended as in advance on all others of their colour. But while I am ready to support the axioms of the florist when applied to florists' flowers, I sternly refuse to apply them to every object in the floral world, and I maintain that Beaton's hybrid Pelargoniums are manifestly without their pale. To my mind there is a poverty of conception in being unable to discover beauty out of and beyond the florist's pale, however sound may be his premises, however logical his conclusions. The late Mr. Beaton once said to me, in reply to a remark that the florist would never recognise the Stella race of Pelargoniums, "Never mind; let me get novelty of colour, compactness of habit, freedom of flowering, flowers that will stand the sun and rain: the public will appreciate their qualities, and I will improve the form afterwards." Alas! his life was too short to complete the task. But there remain among us others who can and doubtless will take up the work, and extend and perfect the new lines of beauty which he so successfully struck out. No impartial critic could for one moment contend that the florist's Pelargoniums produce anything like the effect of these hybrids when planted in masses in the flower garden. This is all that has been or is at present claimed for them. If the florist is not content with them as they are, let him cultivate the new and rich ground, to which the late Mr. Beaton has given him access, and draw forth productions in accordance with his own taste. A rich harvest will surely reward his skilful brain and industrious hand. But until he succeeds in combining his ideal of form with the valuable qualities these hybrids possess—namely, perfection of habit, freedom of bloom, novelty of colour, compactness, and indifference to sun, wind, and rain, we must continue to say that the race now before us is "indispensable in the future of every well-arranged flower garden." Of the sixteen varieties sent out from these nurseries last spring there is not one but what has been praised by some who are entitled to be heard. As, however, they have been constantly under my eye throughout the summer and autumn, it may be interesting to your readers to know the order of merit which I have assigned to them in my common-place book:—

Indian Yellow	Donald Beaton	Glowworm
Waltham Seedling	Duchess	Princess Lichtenstein
Orange Nosegay	Alexandra	Scarlet Gem
Amy Hogg	Mrs. Wm. Paul	Magenta Queen
Black Dwarf		Salamander

The remaining two, Fulgens and Pillar of Beauty, I do not recommend for bedding-purposes, but for growing under glass, the latter as a climber, they are of uncommon merit. Now, in the adjustment offered above it must be borne in mind that it is founded on the experience of a single and peculiar season, for although these kinds bloomed with me in the summer of 1864, I was then too intent on propagating and seeding them to allow them to take their natural development. Hence it is just possible that another season's experience may modify their positions.

It is a fact well known to the florist that when new ground is once broken the disposition of succeeding generations to vary is often extraordinary. I have found it so with the offspring of Beaton's hybrid Pelargoniums. Among the seedlings which bloomed here for the first time this summer I have found not only improvements on the originals in form and colours, for which I was

working, but also sports and novelties quite unlooked for: "dark rosy purple," "light rosy purple, with white blotch on upper petals," "light bluish pink," "rich crimson, orange blotch, white eye," "scarlet and purple nosegay," "purple and rose shaded," are descriptions extracted from my note-book, which abundantly testify to this tendency. Then there is a race of Pompons, or Liliputians, of various colours, of which the well-known "Waltham Pet" may be taken as the type. It was a sad day for the Verbena and other kindred but uncertain "bedding" plants when Beaton took to hybridising the rich and varied species of the genus *Pelargonium*. The certainty with which they accomplish the work allotted to them, their freedom and continuity of bloom, the gorgeous masses of colour which they produce, and their comparative independence of the changes of weather, place them without rivals in their own peculiar walk. The following set have been selected from among some thousands of seedlings for distribution in the forthcoming spring; and although I am not prepared to say that this will be the exact nature of the issue, it is yet that which is contemplated at the present time.

1. NOSEGAY, OR HYBRID NOSEGAY VARIETIES, RECOMMENDED FOR MASSING OUT OF DOORS.

Banneret.—Flowers crimson, purple and scarlet shaded. Very bright and beautiful.

Fairy Queen.—Rosy purple. A large smooth flower.

Minstrel.—A salmon Nosegay, something like Lord Palmerston, but brighter in colour, broader in the petal, and consequently more effective.

Monte Rosa.—Dark rosy purple; fine truss, and habit very free.

Nimrod.—Orange scarlet, white eye; large truss; fine foliage. Very free.

Nymph.—A salmon-pink Nosegay, large and fine.

Peach Nosegay.—Peach colour; plain leaf; splendid truss. Very free,

Phoenix.—Splendid scarlet, in the way of Stella, but much brighter.

Prince of Orange.—Orange scarlet, very bright; great substance; good habit; blooms very freely.

Rebecca.—Flowers cherry colour; fine truss; very profuse; habit dwarf.

St. George.—Flowers dark chestnut, quite a new colour.

Salmon Nosegay.—Flowers true salmon.

Sir J. Paxton.—Bright orange; fine large truss.

Village Maid.—Deep pink, white eye, habit dwarf; the deepest of the pink varieties.

2. VARIETIES SELECTED FOR THE FORM OF THE FLOWER AND TRUSS, AND RECOMMENDED PRINCIPALLY FOR IN-DOOR CULTURE.

Bride.—Flowers pure white, deep red eye; of fine form and great substance; good truss and habit.

Cardinal.—Orange scarlet; perfect in form and of good substance; truss and habit good.

Celestial.—Flowers rosy lake with fiery spot on upper petals, centre bluish purple, reminding one of the *Cactus speciosissima*; large white eye. New in style, and surpassingly lovely.

Lord Chancellor.—Salmon pink; perfect shape; white eye; fine habit, and very free.

Poet Laureate.—Flowers rosy purple, top petals orange scarlet; yellowish eye.

Tiara.—Flowers scarlet crimson, with a glow of purple; fine habit; good truss; very free.

3. POMPON, LILIPUTIAN, OR PIGMY VARIETIES.

Diamond.—Fine scarlet, purple centre, distinct white eye; blooms very freely; good dwarf habit.

Dryad.—Beautiful rosy pink ; fine shape and truss.

Naiad.—Flowers purple, scarlet top.

Waltham Gem.—Flowers light red, white eye, peculiar and beautiful colour ; leaves yellow ; habit dwarf and compact.

Waltham Lilac.—Flowers true lilac.

Zephyr.—Light purple, rose top ; very dwarf and free ; stands the rain and sun well.

These varieties once in circulation, and thanks to the intelligence and industry of the late Mr. Beaton, a complete and splendid flower garden may be formed of *Pelargoniums* alone.

Waltham Cross, London, N.

WILLIAM PAUL.

REMARKS ON FRUIT-TREE CULTURE.—No. 5.

IN my former papers on this very interesting subject I have endeavoured to point out in plain and practical language, divested alike of technicalities or scientific theories, a few of the more prominent points which have occurred to my mind during the course of my manipulations and practice ; and as I trust they may serve as reminders to those young beginners in the profession, who will, most probably, consult their own interest by keeping up an acquaintance with the gardening literature of the day, I will resume the subject by commencing with the management of the trees the season after planting, which is the point to which we have now arrived. And here we must set before our mind's eye the objects which we propose to strive after in our future operations, the principal of which I conceive to be the production of fruit, and, therefore, our attention will naturally be directed to the formation of fruitful wood. This part of the subject is altogether so important that it ought most particularly to engage the attention of the young practitioner. Fruitful wood is never the result of chance, but may, in most cases, be traced to a primary moving cause ; and the one great moving cause into which all other minor causes converge, or from which they radiate, is that law of nature by which plants in common with animals are impelled to reproduce their kind, which as a general rule will take place when a certain point of maturity is attained, or, perhaps I might say, certain conditions of growth arrived at in which the tree is strong enough to bear fruit. In practice we are accustomed to follow out certain methods, by which we can almost to a certainty act upon the known tendencies of trees under certain conditions and circumstances, so as to produce, as it were, artificially those conditions by which plants are influenced to obey the above law when growing in a state of nature ; or, in other words, left to ramble unchecked. In writing on these subjects we are very apt to allude to plants as if they were animated beings ; and I do not see the unfitness of this, because plants do really possess a principle of vitality which is very near akin to the vitality of animal life, and the principles on which we work are alike in both cases. Many of them also possess a wonderful power of accommodating themselves to various circumstances, and it is only by acting on this analogy between them that we are able to produce corresponding results. In the case immediately before us, under ordinary circumstances plants do not proceed to the formation of fruitful wood to any extent until a partial exhaustion takes place, or, in other words, a certain degree of maturity is arrived at. The time at which such maturity is attained varies very much in different plants, but when attained the functions of the tree are at once diverted to the development of the organs of reproduction, and the result is the formation of fruitful wood.

Now, root-pruning, lifting, and all the other manipulations attendant upon the artificial management of fruit trees have this very object in view, and are but so many means by which that condition of growth is brought about, because by those operations we disturb the tendency in young trees to excessive development of wood, and threaten, as it were, the life of the tree, which at once sets about the work of reproduction by seed.

The means to be adopted for inducing this habit of growth are various both in mode and application, but all tending to the same end:—In one case severe root-pruning may be necessary; in another, it may be best to lift the tree entirely out of the ground and replant it in fresh soil; and in another, the disturbance of the action of the roots by defoliation, or the constant and continual removal of all superfluous growth may be resorted to, or, in other words, the system of stopping and pinching back the growth during the summer, by which the roots are greatly influenced, and in most cases a fruitful habit induced. I should also observe in passing, although I shall have to refer to the subject again, that excessive fruit-bearing has a very great influence on the roots and growth of the tree; and when by our operations we have succeeded in bringing the tree into a good bearing state, we possess in the fruit a most powerful auxiliary in the work of maintaining the balance between the roots and branches.

If a fruit tree is planted in generous soil, and is otherwise favourably situated, it proceeds forthwith to the development of a strong and vigorous growth, and if left unchecked it will continue to do so as long as the roots can find food in sufficient abundance, but when the store is exhausted the necessary check is produced, and fruit-bearing follows. But previous to arriving at this point, we often see such trees produce a fair amount of bloom, which expands and to all appearance sets very well; but, except on the very weakest branches, it never advances further, but drops off abortive, because the strong shoots possess so great a power of attracting the sap to themselves, that it is diverted from the incipient fruit to the formation of more woody growth. Before these things came to be better understood, this state of matters was sought to be remedied by a resort to severe winter pruning; the strong wood was cut out, and the weaker and apparently fruitful was left or laid in, as the case might be; and the result was very often a state of things worse than before, because of the great amount of sap which the strong growth of the preceding year had sent down in readiness for the future development of growth, and the result was the continued development of strong and vigorous wood, in even a larger proportion than before, because the effect of cutting back strong shoots is to produce a greater number of equally strong shoots; and this is a tendency of which we always take advantage when we wish to obtain a supply of young shoots to fill up vacancies.

Redleaf.

JOHN COX.

THE NUNEHAM PARK ONION.

THIS remarkably fine Onion was exhibited by Messrs. W. Cutbush & Son, of Highgate, at the recent International Show of Fruit and Vegetables at South Kensington, and it was fitly awarded a first-class certificate for its excellent qualities. The bulbs are very large, and remarkably solid and heavy, and it has all the appearance of being an extraordinarily good keeper. From a small plot of ground a great weight of bulbs can be obtained. Those who claim for it an identity with Danver's Yellow, must have been struck with the essential difference in the appearance of the bulbs; as seen at South Kensington,

not only did it lack similarity of shape, but also the agreement of colour of the outer skin, while the smoothness of Danver's Yellow was wanting in Messrs. Cutbush's variety, the last having a rougher and hardier-looking outer covering.

T. K.

THE FLORAL DECORATION OF DWELLINGS.

FEBRUARY, whatever may be said to the contrary, is a trying month for those who have much decoration to provide for, unless they have a great amount of glass and plenty of fuel at command. Most of the useful autumn plants are over, and there are few to be had from the cold houses. It is a great sacrifice to use Camellias, Heaths, or Epacrises, for these are seldom worth much after having been in the house for any length of time. Azaleas must have heat to bring them out in February; and Primulas and Cinerarias must also have had a little, otherwise they do not expand a sufficiency of blooms at one time to be effective in single vases or looking-glass cases. Bulbs must also have a good brisk heat to bring them into bloom by the beginning of the month; and many persons, too, object to Hyacinths as being too sickly for rooms.

Where it can be done with proper effect, it is a good practice to make a distinction in the different rooms. At present we have for the dining-room neat dwarf plants of Otaheite Oranges in miniature tubs, with a good sprinkling of fruit, the old *Ardisia crenulata*, *Dianella cœrulea* with its beautiful blue berries, *Rivina humilis*, and *Solanum pseudo-capsicum*. The last is very effective; good examples of it might be seen in the conservatory at South Kensington both last season and this. The *Ardisia* is also a good plant for decoration, from its clean glossy leaves and numerous bunches of red berries. We also find, from its having been standing in conjunction with Ferns, that great numbers of these spring up all over the surface of the soil in the pot, and they diminish the length of the stem, and save the labour of mossing the vase over, without doing any apparent injury to the plant.

For general decoration, we have in large single vases Azaleas, *Canarina campanula*, *Thyrsacanthus rutilans*, Persian Lilacs; and for the largest vases, by the middle of the month, a plant or two of the Guelders Rose and Laburnum come in for a change. The old-fashioned *Canarina* is too well known to require description; it is of easy growth, and has a light handsome appearance in rooms. The Lilac, Guelders Rose, and Laburnum are kept carefully to one stem, and make a good change: the Lilac in particular is a great favourite, and blooms profusely when so treated. *Thyrsacanthus rutilans* is much improved by tying the shoots out at the top to a circular wire or hoop, which keeps the long pendulous flower-stalks well out, and shows the flowers to greater advantage. For smaller vases, or tables, and bronze stands, we generally use a few of the best sorts of plants, as *Amaryllis* and *Deutzia gracilis*; and one stand is of *Eucharis amazonica*, and others of Fern-leaved Primulas. A very good plant for this month on a drawing-room table is the *Ipomœa bona-nox*: it opens its large white blooms about seven in the evening, and they remain open all the night, scenting the whole room with their delicious odour. It is a mistake to dry *Amaryllises*; they are continual bloomers if carefully treated. The *Eucharis* is, perhaps, the most easy stove bulb that we have to grow and bloom at any time with certainty; it is, besides, the most beautiful plant for a room table that I know, as it opens its blooms freely, and stands long. In large tile-boxes inside the windows, where the plants require to be from 18 inches to 2 feet in height, we have *Browallia*, *Begonia nitida*, *Eranthemum pulchellum*, *Gesneras*, *Salvia splendens*, *Justicia*, *Poinsettia*, and the beautiful white *Prunus*. The *Eranthemum* and *Justicia* are not good house plants, as they soon lose their

bloom. In small cases under looking-glasses, &c., we have Begonias, as insignis and others of the best winter-blooming sorts, grown in pots of the proper size to fit the boxes. Four or five cuttings are put into a 60-sized pot in August, and shifted at intervals into the proper size, which is generally that called 48's. When no longer serviceable the plants are thrown away. The red and white Primulas and Cinerarias are also grown in the same size, and thrown away when done with, as they are seldom of any use afterwards, as we find it better to push on a fresh stock than try to recover them. The best Tulips for very early work are the Duc Van Thols, particularly the yellow. In niches round the entrance-hall, or on each side of busts, the *Calla æthiopica* is most useful, and can be had during most of the winter and spring months.

No taste which has sprung up of late years is so beneficial to the gardener as that for fine-foliaged plants; they not only add to the summer variety, but many when properly treated are most useful for winter house decoration. Supposing that we are in the midst of a run of company, and anxious to make a change from the flowering plants, we put in the large vase, where the high Azalea is, a plant of similar height of the *Canna discolor*; in the next size, *Latania borbonica* and *Seaforthia elegans*. The former of these is a most graceful Palm for a room or entrance-hall; and when large the *Seaforthia* is more stately in habit, and requires a few Ferns round the bottom of the stems. For the other places we have *Dracænas*, *Croton pictum*, Ferns, &c.; and for the small boxes, *Centaurea argentea* and *candidissima*, *Coleus Verschaffelti*, and the yellow-variegated *Geraniums*. *Centaurea candidissima* is a most beautiful plant for decoration; its long, feathery, frosted-looking, silvery leaves are very handsome in vases, and the plants come in for the garden in spring. Many of the new yellow-variegated-leaved *Geraniums* are much more beautiful and effective in pots with a little heat than when planted out in the garden. All the variegated-leaved *Begonias* are unfortunately very dull, and make no show in a room, which is the more to be regretted on account of their easy culture; they want a more decided mixture of white and red. The *Coleus* requires a little bottom heat to keep it moving into leaf for the winter months.

J. F.

PEARS.

No fruit, perhaps, has made more progress than the Pear. Some few years ago, with rare exceptions, Pears were little better than a dish of Skirving's Swedes! The difficulty now is how to select good Pears, and the best. The Pear catalogues are nearly as extensive as the Rose catalogues, the reader is bewildered, and ends by ordering none. I have pleasure in recommending the following. All not asterisked are on the quince stock. The best two here, and the best I have ever tasted, are respectively the two first-named:—1, Joséphine de Malines; 2, Beurré Superfin; *3, Marie Louise; 4, La Vineuse; 5, Doyenné d'Alençon; 6, Beurré Diel; 7, Duchesse d'Orleans; 8, Dr. Trousseau; 9, Baronne de Mello; 10, Bergamotte d'Esperen; 11, Beurré d'Aremberg; 12, Beurré de Rance; 13, Beurré Defais; 13, St. Michel Archange; 14, Marie Louise d'Uccle; 15, Williams's Bon Chrétien; 16, Beurré Beymont; 17, Napoléon Savinien; 18, Glou Morceau; 19, Doyenné Gris; 20, Beurré Bachelier; 21, Peach; 22, Beurré d'Amanlis; 23, Comte de Lamy; 24, Passe Colmar; 25, Beurré Mauxion; 26, Duchesse d'Angoulême; 27, Beurré Sterckmans; 28, Doyenné d'Été, first early. These lost their crop by the frost. I removed the sheet over them a few days too early. On the 7th of May, the water in the stable-bucket was frozen. Madame Millet, Barbe Nelis, Fondante de Mars, Comte de Flandre, Fondante d'Automne, Beurré Giffard, Winter

Nelis, Iris Grégoire, Avocat Nelis, Bezi d'Esperen, Thompson's, Aglaë Grégoire, Louise Bonne of Jersey, Prince Albert. Such are my stock. Such were my kind friend, Mr. Rivers's gift. These little trees are the delight of all who come here. I have two other gifts of his which I can most highly recommend, the Transparent Gage and the Royal Victoria Nectarine. The last is late, very large, handsome, very excellent, and the tree is very healthy. It is by far the best Nectarine that I ever saw. It is round, a little flattened at the apex.

These Pears were sent to me to taste by my friend, Charles Ingram, Esq., of Blandford (not grown on the quince stock), and they are very good—Van Mons Léon le Clerc (extra good), Dunmore, and Napoléon.

If your readers buy some of the above Pears, I think they must be pleased. Except the first two, I have not put them in the order of merit. With the exception of 28, they may all be called "delicious." Doyenné d'Alençon is very superior, but tender in its blossoms. In fine, I may observe, that is impossible to define the seasons of ripening. I never knew Pears and Apples rot so fast.

Tarrant Rushton.

W. F. RADCLYFFE.

ON SPARROWS EATING GOOSEBERRY BUDS.

I OBSERVED with some interest Mr. Tillery's account in Vol. IV., page 122, respecting rooks eating Crocus bulbs, and also his remarks on sparrows; but I differ from him as to sparrows eating Gooseberry buds. During a long experience I have never detected them doing so, although I have watched them closely amongst damaged bushes. I may have mentioned this before in these pages, and also that bullfinches did the damage, and that sparrows were wrongfully blamed. I likewise differ from Mr. Tillery's statement, where he says "Who ever saw a sparrow eat a grub or caterpillar if it could get anything else in the shape of grain, seeds, bread, or potatoes?" I have encouraged a small colony of sparrows for several years, and it is surprising to see the quantity of both grubs and caterpillars which they carry to feed their young. Other writers mention the same thing. In the "Naturalist's Magazine" one person speaks of a sparrow dropping grubs from its bill into a cage to feed a canary, which a lady at Chelsea had put outside her window; and Bishop Stanley states, on the authority of another writer, that a pair of sparrows during the breeding season may destroy 3400 caterpillars in one week. I may have said enough to show that my own statement stands not alone, to which I may add, that there are many different kinds of birds that feed their tender young with food of very different quality from that of the old ones. In fact, this is considered to be one, if not the chief, cause which gives impulse to the migration of birds.

I fully concur in the account of sparrows eating off the tops of early Peas. Perhaps the best preservative is to cover them with nets or branches, or to draw a little soil over the tender crop until the attention of the sparrows is drawn off to something else. They seldom attack the pods of early Peas, though sometimes they injure late ones. They are often blamed for greater damage done by tomtits or "oxees" of the Scotch. There are four different kinds of the Parus or tomtit that frequent gardens, all of which destroy insects, but at times some of them are very mischievous. *P. major*, or saw-sharper, called so in Norfolk from his shrill notes, like the sharpening of a saw, is the one which in winter taps on bee-hives and snaps up the bees, and it is remarkable that Forster in his "North America," Vol. I., speaks of its having been met with in "latitude 40° north, and longitude 48° west, about 920 miles from land." I leave this curious fact to notice that it is the *P. cœruleus*, the blue-cap, which does most damage to late Peas, and also picks holes in the stalk ends of Pears. Mr. Knight, who raised some of the best kinds of new Peas, had much

trouble in preserving them from those little plagues. It is rather difficult to entrap or shoot the little depredators, and perhaps it is best to defend the Pears with nets; and to keep these birds from Peas it is good to grow plenty of Sunflowers and Poppies, whose seeds they prefer to green Peas. I may state, that during the past season a small covey of hawfinches, or grosbeaks, attacked my Pears, which was the first time I had seen those rather rare birds alive. As some of them were young they may have been bred in this locality.

Cossey Hall Gardens.

J. WIGHTON.

THE CULTIVATION OF THE PRIMULA.

WHERE is there a plant which during the autumn and winter months is so gay or beautiful as the Primula? It is also very useful for exhibition or decorative purposes, or for filling the flower-vase or bouquet. By artificial light some of the varieties are very brilliant. During the last season a number of very beautiful double seedlings have been brought before the public, especially those of Messrs. Windebank & Kingsbury, of Southampton, who at the present time possess some very splendid seedlings.

Where high cultivation is aimed at, care must be taken to keep the plants healthy at all times. I generally sow the seed early in March, or in April, in pans placed on the front shelf of the greenhouse or vinery. I find that to bring the seedlings up well nothing is so good as putting a square of glass over each pan, and as soon as the plants appear I remove this to prevent their being weakened. When strong enough, I pot them into small 60's, using for soil half leaf mould, loam, and a little silver sand. I keep them in a close frame for a few days till well established, when I give air freely on all favourable days. Early in May I repot the plants into 32's, using the same description of soil as before. I now plunge them in a cold frame in a shady situation for the summer months, and in the end of July I repot into their blooming-pots, 24's, using a mixture of half loam, leaf mould, and a little rotten dung and silver sand. I then replace them in the frame as before, and am always very careful not to allow them to get dry during the summer, as nothing is so injurious to them. Early in September I remove them to the greenhouse, and I thus secure a good supply of bloom for the autumn and winter months.

Crabwood, Southampton.

J. C. HIGGS.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY. — Although the Fruit Show held from the 9th to the 16th of December had but little claim to the title of "International," there was, nevertheless, a very respectable display both of fruit and vegetables, good without being remarkable. Especially worthy of notice were the fine collections shown by Mr. Lewis Solomon and Messrs. Webber & Co. of Covent Garden, containing, as they did, numbers of those magnificent Pears which are to be seen at this season decorating the shop-windows of the Grand Row of that market. Such Pears are purchased at almost fabulous prices from French growers, who must derive a good profit from their cultivation, but for the most part the only recommendations which they possess are their size and beauty; indeed one of the kinds, Uvedale's St. Germain, known

also at Paris as Belle Angevine, is a stewing Pear. It seems that at Paris these Pears are let out by the fruiterers for dinner parties, and one of the French gardening periodicals relates that a gourmand, after fondly eyeing a dish of them for a long time, much to the dismay of his entertainer requested that one of them should be cut. However, there was no escape, a Pear was cut up into a number of pieces, the party tasted, and but tasted, disgust was depicted on every countenance, they might as well have eaten a Turnip; but whatever their disgust might have been that of their entertainer was greater, for when the fruiterer's bill came in one of the items was "an Angevine Pear, 70 francs." Our lively neighbours have, perhaps, a little exaggerated the price to improve the story, for these Pears may be had in London for about half that sum and

even less, still the anecdote may serve as a warning to those who set fruit on their tables merely for show. To return to the Fruit Show, eight Uvedale's from France in Messrs. Webber's collection weighed nearly 20 lbs., and a dozen grown in Bedfordshire 22½ lbs., these last measuring 12 and 13 inches round. Easter Beurré, Joséphine de Malines, and some others from the same firm were also very fine. Excellent Apples of several kinds, Pines, Grapes, Melons, Oranges, Pomegranates, Shaddocks, Prickly Pears, Litchies, fruit of a Solanum from St. Michael's, and various Nuts were also shown in this collection. That from Mr. Solomon was very extensive and fine, comprising twelve Pines of the Jamaica Cayenne, and Queen varieties, several kinds of black and white Grapes, Uvedale's and other Pears of a similar character to those noticed above, remarkably fine Apples, Truffles, Asparagus, green and blanched, green Peas, and other vegetables. Mr. Ingram, gardener to Her Majesty, had the Gold Medal of the Society for the best collection of fruit and vegetables produced in the garden of a Sovereign, an award which he well deserved. The six Smooth-leaved Cayenne Pine Apples which he exhibited were between 6 and 7 lbs. in weight, remarkably even in size and appearance, and beautifully ripened. Grapes, excellent Apples and Pears, and a numerous and good collection of vegetables were the other subjects shown by Mr. Ingram. Excellent collections of Apples and Pears were shown by Mr. Whiting, gardener to Mrs. Hope, The Deepdene, Dorking; Mr. Ford, gardener to W. E. Hubbard, Esq., Horsham; Mr. Smythe, gardener to Lord Sondes; R. Webb, Esq., Reading; and Mr. Dixon, Holland House. Mr. S. Snow, gardener to the Countess of Cowper, Wrest Park, Beds, contributed six Uvedale's St. Germain Pears weighing 13 lbs. 13 oz., a good weight, but not equal to that which is sometimes attained by this variety, of which a single fruit has been known to weigh upwards of 3 lbs. Miscellaneous subjects consisted of several Orange trees in pots from Messrs. Rivers & Son, and bearing very freely; some very fine Pomegranates grown in an orchard-house without artificial heat by Mr. Downing, gardener to T. Grissell, Esq., Norbury Park; a fine mass of Eucharis amazonica from Messrs. A. Henderson & Co.; and vases formed out of Custard Vegetable Marrows, very tastefully filled with Violets and Ferns, exhibited by F. J. Graham, Esq. of Cranford.

In the colonial and foreign department the Fruit Growers' Association of Nova Scotia exhibited a fine collection of Apples, mostly of large size and highly coloured, also Pears. The Horticultural Society of Copenhagen sent a similar collection, in which were a number of varieties well known in this country, such as

Reinette du Canada, Court Pendu-Plat, London Pippin, King of the Pippins, and Claygate Pearmain Apples, and Seckel, Uvedale's St. Germain, and Beurré de Rance Pears. There were, besides, a number of those high-coloured soft, light Apples which are very beautiful to look upon but very insipid to eat. Malta sent Oranges, Lemons, and others of the Citrus tribe, and vegetables which did not contrast favourably with those grown in our colder but richer soil, but the period at which the show was held was adverse to a good exhibition from that island. From Victoria came models of fruit and vegetables; from the Cape of Good Hope dried fruits; and from India tropical fruits in great variety preserved in spirits, and some of them not distinguished for the sweetness of their perfume. The Vegetable Show was good, though not large, and it had a neater appearance than vegetable shows generally present; there was not that roughness as if the things had just been plucked from the ground and thrown down on the tables, and there was not, on the other hand, that amount of trimming which deprives vegetables of their natural character; moreover, with a few exceptions, everything was neatly labelled. The principal exhibitors were Mr. Ingram, whose collection has been already noticed, Mr. Whiting, Mr. Budd, gardener to Earl Darnley, and Mr. Ford. Nova Scotia contributed thirty-eight dishes of Potatoes mostly large and very coarse, Onions, Beet, Parsnips, &c., and a fine collection of Gourds was shown by Messrs. Barr & Sugden. The Nuneham Park Onion was shown by Messrs. Cutbush, and a collection of Potatoes by the Rev. G. W. St. John. Northumberland Champion Celery was sent by Messrs. Dewar of Newcastle-on-Tyne; it is white, solid, and of excellent flavour. From the same firm came also Dewar's Improved Short-top Beet, a variety with a bright dark red flesh, and excellent when baked.

At the Scientific Meeting of December 19th, in consequence of a recommendation of the Floral Committee that a medal should be granted to Mr. Veitch for a fine collection of Orchids and other plants exhibited on that occasion, W. Wilson Saunders, Esq., the chairman of the meeting, announced that the Council had taken the subject into consideration, and had decided on having a new medal struck to be called the Lindley medal, only to be given at Tuesday meetings, and as a medal. This will afford additional inducement for exhibitors to support these meetings, and will, no doubt, be the means of adding greatly to their interest. They are to be resumed early in the present year, though the date at which the first is to be held is not yet fixed. It is to be hoped that this year they will be as interesting, instructive, and well supported as they were in the past. The grant of this medal is an earnest of the desire which the Council have to increase the use-

fulness of these meetings, which are a common ground on which scientific and practical men can meet and interchange their views, and many interesting facts are thus elicited; moreover last year the display of flowers and fruit at some of the meetings was very large, and the room was crowded by many who at an ordinary exhibition would have seen, admired, and gone away no wiser than they came as to the nature, history, or uses of that which they had seen.

SOUTHAMPTON HORTICULTURAL SOCIETY.—The monthly meeting of this Society was held on Monday the 11th of December; the Rev. Dr. Cary in the Chair. There was a large attendance of members and friends. Among the subjects exhibited were blooms of that splendid climber the *Ipomœa Horsfalliæ*, as also a plant of the *Calanthe vestita rubra*, both of which were shown by Mr. Boyce, gardener to H. J. Buchan, Esq., who gave an interesting description of the characteristics of each, and his method of cultivation. Messrs. Windebank and Kingsbury sent some beautiful double *Primulas* of various shades of colour, among which was one of the original double white, so that the great advance made in them might be seen. In a choice collection from Mr. Hayes was a plant of the *Poinsettia pulcherrima*, the floral bracts of which, being fully expanded, rendered it an object of great admiration. Mr. Blandford, gardener to — Standish, Esq., sent a collection of twelve sorts of Apples, many of them very fine. Mr. Dean read a paper on spring flower-gardening, in which he adverted to the objection made to the modern system of parterre flower-gardening, that everything was sacrificed for the sake of obtaining gay bloom for a few months; pointed out how by a judicious arrangement of certain hardy blooming plants during the winter months, and especially in the spring, this objection might be overcome; gave a list of plants suitable for the purpose, with instructions as to their propagation; and concluded by asking the members to put the system he had advocated into practice. Mr. Whitehorn then read an interesting paper on that inexhaustible subject the Potato disease, in which he attributed the disease to our having departed from nature in our treatment of the plant, and pointed out the mode of cultivation which he considered most in accordance with its true character, and best calculated to ward off the attacks of the disease. After a sharp passage-of-arms

between Messrs. Whitehorn and Kingsbury on some of the points advanced in the paper, Mr. Higgs referred to the labours of Mr. Paterson in improving the stamina of the Potato, and said that he looked forward to such an improvement in its constitution eventually that it would become impregnable to the attacks of the disease. Mr. Dean gave some information respecting a number of Paterson's and other Potatoes which he had grown during the past season, showing that the newer varieties had withstood the attacks of the disease whilst older sorts had succumbed, and laid great stress upon the importance of thoroughly exposing the seed before storing for the winter.—A. D.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—His Royal Highness the Prince of Wales has graciously consented to accept the Presidentship of this Institution, vacant by the death of the Duke of Northumberland, and has made a donation of twenty-five guineas to the funds. The chair at the next anniversary dinner is to be taken by Sir C. Wentworth Dilke, Bart., M.P.

CALEDONIAN HORTICULTURAL SOCIETY.—The proposition for the amalgamation of this with the Edinburgh Horticultural Society, mentioned in our last Number, was adopted on the 6th December, and a Council elected from the two bodies under the presidency of the Duke of Buccleuch. The Experimental Garden has been transferred to the Board of Works, and will be converted into an arboretum in connection with the Botanic Garden.

MR. WEIR.—A circular has been issued by the Royal Horticultural Society inviting subscriptions in aid of Mr. Weir, their plant collector in South America. He was attacked by fever on his return from Bogota to Santa Martha, in October, 1864, and on the fever leaving him he was found to have lost the use of his limbs. Although he has been for some time in this country he is still suffering from almost total paralysis, and Dr. Seymour Haden reports most unfavourably of his case. The Council state in the circular, that they feel they cannot for any length of time apply the funds of the Society to Mr. Weir's support, but express confidence that the Fellows who have benefited so much by the beautiful plants which he sent home will not be unwilling to subscribe to provide for him.

Subscriptions are received by Captain Cockerell, Royal Horticultural Society's Offices, South Kensington, W.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

No attempt should be made to excite a premature growth at this season by keeping a high temperature. From 55° by night to 63°

by day should be the highest limits. At the same time the atmospheric moisture should be reduced considerably; water with great caution. *Ixoras*, *Allamandas*, &c., if wanted

to bloom early, may be plunged in bottom heat towards the end of the month. *Orchids*.—These will be mostly in a state of rest, and merely want a comparatively cool and dry atmosphere till they commence their new growth. As soon, however, as they show indications of starting, let them be potted or redressed at once, or the newly-formed roots, if allowed to grow any length, would probably get injured afterwards. Those kinds which grow, more or less, at all seasons will require a night temperature of 60°, with an increase of 10° by day. Syringe the blocks, baskets, &c., each sunny day, and keep the internal air moderately humid by damping the pipes as occasion requires.

GREENHOUSE.

Where softwooded plants are principally grown a night temperature of 40° to 45°, with an increase of 10° by day, will be requisite. Camellias, as they swell their flower-buds, may be encouraged by weak manure-water. Train climbing plants, as they advance, to their respective supports, and guard against damp and mildew by proper aëration and the application of sulphur. *Azaleas*.—Water must be sparingly given, and only when the plants are dry. Give air daily, according to the state of the weather; remove decayed leaves, and any plants infested with thrips should be cleaned at once, by fumigating them with tobacco three or four times, with intervals of a day or two between. *Cinerarias*.—Plants for exhibition should receive their final shift into eight-inch pots—the size required by the principal societies. During this month give the plants plenty of room, and keep them near the glass. The side-shoots must be tied out as the plant progresses; this keeps them from drawing, and, if done properly, forms dwarf, handsome plants. *Ericas*.—Clean glass, good ventilation in mild weather, without exposing the plants to direct currents of cold air, and moderate waterings when requisite, embrace the principal points of treatment for the present month. Avoid much fire heat, as a substitute for which keep up the temperature of the house by some protecting material. A canvas, or even a calico screen, placed over the roof, will do much in this respect; and a temperature three or four degrees above the freezing-point is sufficiently high, if accompanied with dryness. *Pelargoniums*.—This is a convenient as well as proper time to tie out the shoots of plants intended for specimens. Keep the soil in a good state for repotting the July plants, which should be done towards the end of the month. Watch narrowly for green fly, and fumigate the moment it is observed. All dead foliage should be removed as it appears. Fancy varieties require similar treatment; they do not draw, however, if the house is kept a little closer than is desirable for other kinds of *Pelargoniums*. Give seedlings plenty of room, and water them but sparingly, destroying

those that are “blind,” or cankered with disease.

PITS AND FRAMES.

Bedding Plants.—Damp is the principal thing to guard against at this season; place delicate plants likely to suffer most in the driest situations; give air liberally in mild weather, removing the sashes entirely on sunny days (except in frosty weather), to dry the surface of the pots. Should mildew appear, dust the infected plants with sulphur. Water will scarcely be wanted, except in cases of extreme dryness, or unless the plants are in airy houses. Protect from frost by covering with mats, &c., by night. *Cold Frames*.—Our remarks on bedding-plants apply equally here. The bottom of cold frames, for wintering plants, should be coated over with asphalt or coal-tar, and laid with sufficient dip, to enable waste water to pass off quickly, by which the surface soon becomes dry; whereas, when it is absorbed by a porous material, it is again given off slowly, and causes a damp, unhealthy medium for plants to winter in.

FORCING.

Fruit.—Those who want ripe Grapes in the end of May or early in June must commence forcing at once. If the border is outside, it will assist the roots to cover it with warm dung, to which additions should be made, so as to maintain a mild heat on the surface; protect this covering from rain and snow by thatching, or throwing a tarpaulin over it in bad weather. For forcing thus early the Vines should have been pruned for some time; and now they will require dressing and training. Start with a temperature of 45° by night, increasing it a degree per week. Damp the Vines daily, and keep the atmosphere of the house moderately moist; give air each fine day, and let the thermometer range 10° or 12° higher by day than by night, with a slight addition during sunshine. Prune, dress, and train succession vineries and Peach-houses to be in readiness when required. To obtain early Strawberries, plunge some of the earliest-potted plants in a mild bottom heat under glass; this will bring them forward gently, and towards the end of the month they should be removed to a situation with a moderate temperature, and fully exposed to light, which will assist them to throw up strong trusses of bloom. Sow Cucumbers and Melons for the first spring crops in a good bottom heat; when the plants are up, keep them near the glass, in order to encourage a stocky growth. *Forcing Flowers*.—Where Roses, Lilacs, Deutzias, American plants, &c., are forced for decorating the greenhouse or sitting-room, well-established plants of the above should be plunged in a very mild bottom heat, to forward them; a deep frame or low pit answers well for them. As the buds develop themselves remove the plants to a warmer house; keep them near the glass, and

frequently damp their foliage. Hyacinths, Narcissus, Tulips, &c., with Lily of the Valley and *Dielytra spectabilis*, may have the same treatment.

KITCHEN GARDEN.

Should frost occur, wheel dung and compost to the vegetable ground, and rough-dig or trench vacant ground. A crop of early Peas and Broad Beans may be sown in a warm situation. Sow likewise a few Early Frame or Short-top Radishes and Horn Carrots for an early outdoor crop; cover the beds with straw or litter till the plants appear. Give the autumn-planted Cabbages a dressing of soot on a moist day. Protect Parsley, young Lettuce, and Cauliflower plants in frosty weather, and give air to those under glass whenever the days are mild, to keep them from drawing.

FRUIT GARDEN.

Apples, Pears, Plums, and Cherries should be pruned in mild weather, and those against walls or espaliers should be afterwards nailed or tied in. Cut away the old wood from Raspberry stools, selecting from three to five of the strongest canes for bearing; these may be tied up to stakes or rods, but not shortened back till the spring. Defer pruning Gooseberry and Currant bushes till spring, as many of their buds are often destroyed in hard weather by sparrows and other hard-billed birds. All kinds of hardy fruit trees may be planted in open weather, if their roots are covered directly afterwards with half-decayed dung or litter, to protect them from frost.

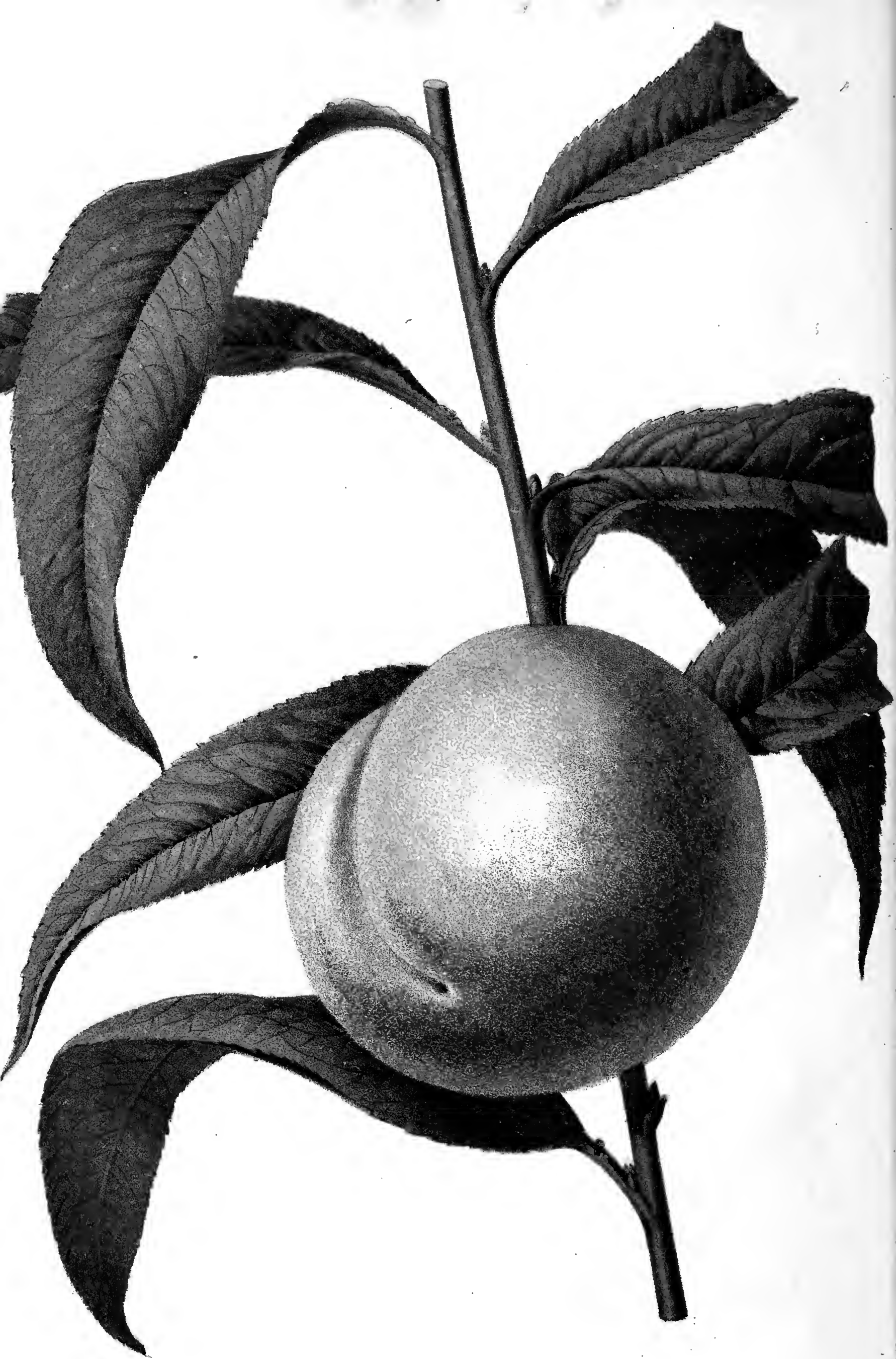
FLOWER GARDEN.

Keep the turf, edgings, and gravel walks clean; well roll the latter after frost or rain, to keep them firm; let the borders and beds, if not planted up, be kept neat by raking over the surface. Protect half-hardy plants from frost with fern or branches of evergreens stuck round them, and cover the roots of such plants with sawdust or old tan for the like purpose. *Roses*.—Beds of Tea-scented or China on their own roots should be covered with 3 or 4 inches of ashes or old tan, or with 5 or 6 inches of moss. Worked plants of Tea-scented, if in an exposed situation, had better be taken up and placed under a south wall, covering the heads with litter; or if not removed, tie fern or cuttings of evergreens on their heads, or cover them with a cap of calico painted and strained over a dome made of split Hazel. These will last for years. Lose no time in planting as soon as the frost is out of the ground.

FLORISTS' FLOWERS.

Auriculas.—The plants will remain quiet another month. The directions given in our last should be attended to. If the frames are in an exposed situation, more covering will be required during severe weather. *Carnations* and *Picotees*.—Keep the frames open on

all occasions when the weather will permit, water only when absolutely necessary. A good fumigating during this month is very beneficial by keeping aphides under. It gives the plants a yellow appearance for a time, but they soon recover, and are none the worse for it. The compost for these plants should be well turned and frosted during the winter, keeping snow from it. *Dahlias*.—Choice new varieties, if a large increase is desired, may now be put to work in a steady heat. Roots of others, if not keeping well, or rotting down the stem, may also be started; for once fairly started they are safe; and if but a few plants are required from them, they may be placed in a cooler house. Pot-roots are the most easily wintered; these should remain under the stage of the greenhouse till March, when they should be started. If not already done, trench the ground intended for Dahlias next season, and it should remain thrown up rough till May. *Fuchsias*.—These, after cutting them in and repotting them in fresh soil, may now be placed in a gentle moist heat to start them. Young cuttings strike very readily at this season, and will make good plants for June and July. The *Fuchsia* is easily grown, but succeeds best in a rich soil. Seed should be sown this month. *Hollyhocks*.—Cuttings will require careful watching this month, to prevent their damping off. Go over them daily, and strip them of decayed leaves, and dry them when the weather will admit of its being done without injury to the cuttings. The old stools and established plants will remain nearly dormant for another month, and will take no harm if wintered in a suitable pit or frame; a cold, damp situation should be avoided. They winter well in the front of a greenhouse; but this cannot often be spared for the Hollyhock, which is anything but an interesting subject in the winter months. *Pansies*.—The soil for blooming these in pots, which should have been prepared in summer, must be well turned and kept tolerably dry, in readiness for use the first week in February, when they require their final repotting, pegging out the shoots at regular distances. The plants should be raised near the glass, and grown as hardy as possible. The frames should only be closed during very bad weather. *Pinks*, after severe weather, should be gone over on a fine day, pressing firmly into the soil such as may have been loosened by frost. Very choice varieties should be protected from cutting winds, by placing small propagating-glasses over them during their continuance, removing the glasses as often as it is fine. *Tulips*.—These, if they have not yet made their appearance above ground, will only require the ordinary treatment of covering during rain or snow. The frost must be severe indeed to injure them before they make their appearance, particularly if the beds have been kept dry.



Early Albert.

CHROMO-LITHOGRAPHED BY F. WALLER. 18, HATTON GARDEN

EARLY ALBERT PEACH

WITH AN ILLUSTRATION.

It is not often that in this country we have had to deal with new varieties of Peaches. Even those horticulturists who have devoted more than usual attention to the raising of new fruits, have not succeeded in producing many sorts of this fruit; and of those that have been produced there are not any, that we are aware of, that have displaced any of the older kinds, or which have taken rank with them. Successful as Mr. Knight was with Pears and Apples, we do not call to mind varieties of Peaches he succeeded in establishing, and it was not because he did not turn his attention in this direction. He made many attempts to produce what should be improvements on existing varieties; but, with the exception of Acton Scot, an insignificant little early sort, and Mountaineer, a large, coarse, and worthless variety, we are not aware that he produced any others. The only other great originator of fruits was Mr. Williams, of Pitmaston, but we know of no Peach that can trace its origin to his skilful hand.

How this should be we cannot say, seeing the success that has attended the essays of Mr. Rivers. To this subject that gentleman has devoted much time, and has brought a large amount of intelligence to bear upon it; and it is perhaps to these reasons that his success is mainly attributable. So great has been the good fortune attending Mr. Rivers's labours in this direction, that he has already produced varieties of Peaches sufficient in number, and in various characteristics and seasons, to be amply sufficient to supply every want, even if another Peach did not exist besides those that he himself has produced. We hope to be able from time to time to bring these various new kinds of Mr. Rivers before our readers, and in the meantime introduce them to one which, we believe, is one of the earliest of these productions.

The EARLY ALBERT Peach is of rather large size, roundish, and frequently higher on one side of the suture than the other, and with a dimpled apex. Skin greenish yellow, and covered with small red points on the shaded side, but deep crimson, becoming sometimes almost black, when grown against a wall and fully exposed. Flesh white, very tender, and melting, with a faint brick red tinge next the stone, from which it separates freely, and with an abundant, sugary, and vinous juice, which is very rich. It is a first-rate early Peach, ripening in the beginning of August.

 THE CULTURE OF THE CINERARIA.

DURING the autumn, winter, and spring there are few plants that add more to the gaiety and beauty of the conservatory than the many improved varieties of the Cineraria. They are also invaluable for in-door decoration; the colours of some of the sorts are very brilliant by artificial light. That a plant possessing such qualities should become very popular is only a mere matter of course, and hence the great improvement that has been effected in it of late years. The last year or two have, however, added but little in the way of improved varieties to those we already possessed. Let me express the hope that the coming season may be productive of some good sorts.

In place of growing a number of named varieties, as was the custom a few years ago, many gardeners and amateurs now raise a quantity of plants annually from seed. They find their cultivation attended with much less trouble than growing plants from offsets of named sorts; they also find them generally

flower much earlier, so that they come in useful for in-door decoration during the winter months; and the loss of the plants, owing to the dry atmosphere of the rooms, is of little consequence, as a fresh quantity can be easily grown from seed for another season.

Formerly, I grew a number of the best named sorts then out, but often lost one or more of them after they had done flowering. I also found that even when I had the offsets potted as early as possible, and with every care and attention afterwards with regard to shading, shifting, and watering, I could rarely bring the plants forward enough to flower freely before the end of February.

Since I have taken to growing seedlings I have had the plants in flower in October and very fine during the winter months, when they are most valuable. I generally make two sowings—one in the first week in April, and the other in the last week in May. The plants from the April-sown seed flower during the autumn and winter months, and those from the May-sown seed during the winter and spring.

I sow the seeds in well-drained pots or pans, using a compost of one part of light friable loam, and two parts leaf mould, with a little sand. I cover the seeds very lightly, place the pans in a little heat, and keep them as near the glass as possible. As soon as the seedlings are large enough they are pricked out into pans or boxes and then put into a little heat; in a short time they will be large enough to be potted-off singly into small pots. The plants from the seed sown in April will be large enough to be potted off singly towards the middle or latter part of May. A cold frame will then suit them very well, keeping it rather close until they begin to grow, when air should be given freely during the day. They must be well attended to in watering, and also in shading in very bright weather; after the 1st of June the lights may be taken off at night if the weather be mild and warm. About the middle of June the plants will require shifting into larger-sized pots, using a compost of about equal parts loam and leaf soil, with a little white sand; when potted the whole of them are placed at the back of a north wall, where they receive a little of the afternoon's sun. I give them no shading, nor any protection whatever, but they are well attended to in watering.

About the beginning of August I shift the plants into the pots in which they are to flower. The plants are left in the same situation until towards the latter part of September if the weather is mild; by that time they will begin to throw up their flower-stems; they are then taken into the houses and placed near the glass, where they have plenty of air, and where they are safe from frost. Some of the most forward plants begin to flower in the latter part of October, and the others bloom in succession during the autumn and winter months. The night temperature is not allowed to fall below 45°.

The plants from the May-sown seed are treated in a somewhat similar way, with the exception that I have some spare lights put over them in hot weather and during thunder showers. I give them their final shift in the latter part of September. When housed they are kept in a little heat, but air is given at all favourable opportunities. If any green fly appear on the plants, they are immediately fumigated with tobacco paper.

It will be seen that I have very little trouble with the plants, and as most of them are used for in-door decorations they are generally thrown away after they are brought out. If the seed has been saved from a good collection of choice kinds (and seedsmen will find it their interest to be particular in attending to this matter, as few people will be satisfied with a lot of worthless seedlings), out of a quantity of plants there will sometimes be a few good varieties—these should not be used for in-doors, but be left to flower in the conservatory or greenhouse. After they have ceased flowering, the flower-stems are cut down

to within 3 or 4 inches of the pot, and the plants are kept under glass until the end of May or beginning of June, when they are planted on a border at the back of a north wall. I have plenty of peat or leaf mould put in around them; they are then well attended to in watering until they begin to grow, after this they receive very little attention until the beginning of August, when I have the whole taken up carefully and potted; the small plants are put into as small pots as they can be put into without damaging the roots; the larger are divided into two or more parts, and these also are put into as small pots as they can be got into. When all are potted they are well watered and put into a cold pit or frame and kept rather close, and in bright weather shaded until they begin to root freely into the fresh soil, when air is given free y. When the plants have made some fresh roots and commenced growing they are all put into tolerably large-sized pots, the compost used being loam, cowdung, and sand. The plants are then carefully attended to during the winter and spring months in respect to watering, tying out shoots, and thinning leaves and weak shoots. These plants make beautiful specimens for spring flowering.

A quantity of plants raised from offsets cannot be brought sufficiently forward to flower so early as plants raised from seed sown in the first week in April; there are also much more labour and attention required in their culture during the autumn, when gardeners have so much other work to do in propagating, and in lifting and potting bedding plants. But even if first-rate varieties from offsets could be had in flower as early as plants from seed, gardeners would still hesitate to use them for in-door decoration. With seedling plants it is a very different case—they are raised annually in almost any quantity with very little labour or attention, and the loss of the plants after they have done flowering is of no consequence.

We want good seedlings, however; if we can obtain flowers of good form, well and good, they will be all the more valued; but clear, bright colours we must have, we hope not to be disappointed.

Stourton.

M. SAUL.

POINSETTIA PULCHERRIMA.

At one of the recent meetings of the Floral Committee at South Kensington, some plants of *Poinsettia pulcherrima* were produced from the gardens of the Royal Horticultural Society. They were from 2 to 3 feet in height, the foliage vigorous and healthy, and the "floral leaves" of an intensely bright vermilion colour. Their culture reflected great credit on Mr. Eyles, the Superintendent of the Gardens, who adopts as his method of growth that prescribed in the *Gardeners' Chronicle* for 1864, page 125. A summary of this mode of treatment may be of interest to many of your readers. The plants should be grown from single eyes taken from the hard well-ripened wood of the previous year. They should be placed in a very sandy peat, and the pot plunged into a brisk bottom heat, or a dung-bed, when they will root freely. They should then be potted in single pots, still keeping them in the frame until well established, after which they should be placed in a stove, keeping them near the glass. From the beginning of June till the end of September they should be kept in a greenhouse, and afterwards in the stove. Here they will soon put forth their brilliant heads of floral leaves, and make a beautiful display. Proper attention must be paid to watering, &c., during the time they are in the greenhouse. As it is a plant liable to be attacked by red spider, the under part of the leaves must be well syringed occasionally, but after the coloured leaves appear, syringing should cease. Young plants produce the most brilliant-coloured leaves; but when old plants are depended on, they should not be cut

back until they have partially dried off, or they will bleed so as to injure the plant. Good drainage is required, and the soil used should be equal parts of light loam, peat, and leaf mould, well mixed with silver sand.

R. D.

REMARKS ON FRUIT TREE CULTURE.—No. 6.

THE proper way of putting into practice those operations upon the branches of fruit trees which may be called restrictive, and the object of which is to induce the production of a habit of fruitfulness in opposition to a vigorous and luxuriant growth of wood, is certainly not by a severe use of the knife in winter pruning; but the operations referred to must be performed during the summer, when all the energies of the trees are in full activity, and, therefore, better able in a short time to repair any damage which a temporary interruption of their development may occasion. In point of fact, however, these operations must commence with the earliest growth of the young shoots, by the entire removal of all that are superfluous. When I say superfluous shoots, I mean not only all such as will not absolutely be required to keep the trees furnished with a gradually increasing development of wood, but also such as will not be necessary for the maintenance of an equal proportion of bearing-spurs, or wood, as the case may be. This process is commonly called disbudding, and much of the future well-doing of the trees will depend upon its judicious performance. It is necessary that the operation should be performed gradually and at short intervals, at first by the removal of foreright and ill-placed shoots, and afterwards by the gradual removal of supernumeraries until the operation of disbudding becomes blended and carried on simultaneously with those of spurring and stopping, which will have to be practised more or less until a short time before the trees become comparatively dormant, and must be so modified in some cases and extended in others as to meet the peculiarities which different trees will develop in the course of growth. For example, we must consider that fruit trees subjected to artificial management are much more likely to be affected in their general constitution than such as are growing naturally and unchecked; and thus, with an equal amount of care in planting, the development of one will be strong, vigorous, and luxuriant, whilst that of another will be weakly and have a tendency to the precocious development of fruit; so that the latter will require encouragement and even stimulation, whilst the former must be very much checked.

Herein lies my principal reason for desiring to caution the young practitioner against the too common practice of generalising the treatment of fruit trees; on the contrary, their constitution and peculiarities should be studied. The trouble is no greater when the principle is understood, than is involved in an indiscriminate method of proceeding; and success, the result of a skilful application of principles, will be much more satisfactory to the operator than the results of chance. My experience on the subject has been mostly confined to trained wall fruit trees, and I have not had much among pyramids; but what I know on that subject convinces me that the principles which regulate the early removal of superfluous wood and the subsequent operations are applicable in both cases, and produce corresponding results, but that pyramids have this advantage—that the system admits of a much greater latitude, and even affords facility for the production of fruit-bearing spurs. At the same time I must observe, that although in the culture of pyramids it may seem to be very desirable to be able to show evidences of skilful treatment in an excessive development of fruit-buds, and it may also seem quite natural that we should retain as great a number of them as possible in order to ensure a good propor-

tion for final selection; yet in practice I feel convinced, reasoning from analogous circumstances, that it is bad policy on our part; because excessive blossom-bearing is a very exhausting process, and when a branch which is only calculated to carry two fruit to perfection is allowed to expend its energies and strength in bringing twelve or even fifteen up to the thinning point, it is quite evident that the greater proportion of the strength and energy so expended is for all practical purposes completely thrown away, and that the fruit remaining, although probably fine in the usual acceptance of the term, is not so fine or even full-flavoured as it might have been had some of the wasted strength been husbanded for its use. If such a waste of strength is permitted to pass unobserved in trees which may certainly be considered comparatively well managed, how great must be the waste where the fruit is never thinned until it reaches the stoning point, and the removal of superfluous growth takes place when the shoots have grown 6 or 9 inches.

The full advantages to be derived from good management can only be secured when the necessary operations are systematically conducted in a gradual and progressive manner, that no strength be wasted in the production of either wood or fruit which must eventually be removed. Now, as the application of principles, although common to all in most respects, yet vary in the mode in different varieties, I think it will be better when I resume the subject to select a few of the more popular sorts of fruit, and make a few remarks bearing on the practical application of those principles to each.

Redleaf.

JOHN COX.

THE PREMATURE RIPENING OF PEARS IN 1865.

WITH me the most of the late-keeping Pears ripened in 1865 quite out of their usual season, and I fear this is general by the reports from Covent Garden Market of the short supply of Pears now coming in there. The only varieties left here for use at the present time are Suzette de Bavay, Prince Albert, Ne Plus Meuris, Belle de Noël, and Léon de Clerc de Laval, a variety that will keep as hard as a stone till June or July, and seldom become melting even then. Doyenné du Comice, Colmar, Surpasse Crasanne, Glou Morceau, Easter Beurré, and Beurré de Rance, all anticipated their usual season in ripening, and are now all consumed. No doubt the very dry summer in the midland counties, and the great heat of September and beginning of October, would cause Pears to ripen prematurely, and this must have had some effect on their keeping-qualities.

I had this autumn some very large specimens of Pears, ripened in pots, of the following sorts:—Marie Louise, Huyshe's Victoria, British Queen, Beurré Diel, Doyenné du Comice, Beurré de Rance, and Glou Morceau; but these came in true to the season, having had plenty of water, when trees in the borders were suffering from the drought in September.

Welbeck.

WILLIAM TILLERY.

ON PEARS AT CHRISTMAS.

THE past season was favourable for ripening Pears, especially late ones; but there have been complaints respecting their quality, and their not keeping. I had, however, the following kinds at Christmas:—Broompark, from an espalier, good, but nearly done; also Van Mons Léon le Clerc. Beurré de Rance, off walls with south and east aspects, was excellent, but, as usual, some of the fruit ripened at the end of November, while others of the same gathering may keep

until March ; the same of Knight's Monarch, which is one of the best late Pears, whether grown upon walls, espaliers, or standards. Winter Crasanne was mealy and worthless off a south-west-aspect wall. Joséphine de Malines, both from walls and espaliers, was of excellent quality, but the whole crop ripened before the usual time ; also Beurré Gris d'Hiver off a west-aspect wall. Beurré Magnifique from an espalier, was very large, but of bad quality, as was the case in the previous season. Vicar of Winkfield, both from walls and espaliers, was very good, but nearly over. In bad seasons that beautiful-looking Pear may be classed with those for cooking. Figue de Naples, from an espalier, possessed a high flavour, somewhat like that of Marie Louise. Glou Morceau and Easter Beurré, off an espalier, were both of fine quality. Prince Albert, from walls with south and west aspects, was gritty and of bad flavour. Much has been said of this new Pear, which resembles Beurré de Rance both in size and colour, but not in quality. Mr. Rivers seems to doubt its quality, for he observes that it is "not always good." Ne Plus Meuris, from an espalier, maintained its usual good character, but was ripe too soon. Chaumontels, from walls with south and west aspects, ripened at the usual time, and some of them were nearly equal to those of Jersey. Passe Colmar was inferior, and it is seldom otherwise except when grown on a wall with a south aspect ; and Winter Bon Chrétien the same. Suzette de Bavay was unripe, but promised well ; also Jean de Witte. Nouvelle Fulvie, from an espalier, was not ripe. I am doubtful of the goodness of this late Pear ; last season it kept until March, and rotted while unripe. Shobden Court was hardly ripe, but of good flavour. I have doubts respecting the proper name of this excellent Pear, which I have grown for some years on espaliers. St. Germain, from a wall with a west aspect, was free from grit and its acrid flavour in bad seasons. Winter Nelis and Marie Louise were over, with the exception of a few which hung upon the trees until the end of November ; and, perhaps, if they had not done so I should not have had either of these excellent sorts in good condition at Christmas.

Cossey Park.

J. WIGHTON.

THE CULTIVATION OF THE MUSHROOM.

To supply the requirements of a first-class establishment in respect to an abundance of vegetables of superior quality "all the year round" demands some forethought, a good deal of contrivance and a considerable amount of sound practical knowledge. Even under the most favourable circumstances when labour, manure, land, &c., are in abundance, there are still the variability of our climate and the very great and frequent differences between seasons, to contend against ; to say nothing of the ravages made by rats, mice, birds, insects, &c.

An abundant supply of Mushrooms during the autumn, winter, and spring months is, however, a very easy matter when plenty of horse-droppings can be had. As in the artificial culture of the Mushroom we do not need the agency of light, we dispense with glass roofs, and with them all the unceasing attention to air-giving, &c. They will grow in any out-house, shed, or cellar, where the temperature does not fall below 50°. Even in midwinter, if the beds be made with a good thickness of droppings, say from 2 to 3 feet, and are kept well covered up with dry hay, Mushrooms can be grown in abundance. They will not, however, come so quickly as in a moist genial atmosphere of 60°. When a large supply is needed it is a wise economy to fit up a house specially for their culture. There is no regular Mushroom-house here ; but as there is plenty of shed room, and as the fireplaces for the vineries are in some of the sheds, I have

no difficulty in finding suitable places for making beds—those for midwinter work I make in the warmest shed, in which there are two fireplaces, but at a considerable distance from the beds, so that I can keep up the temperature of the shed pretty easily without dunging the beds too much. The following is the mode of culture that I adopt; I am not aware that there is anything new in it—on the contrary, it may be as old as the hills for anything I know; it is, however, invariably attended with the most satisfactory results:—I have the horse-droppings brought every morning from the stables and spread out in a shed; they are not allowed to heat, nor to get over-dry. When there is a sufficient quantity for a bed I have it made as follows:—5 or 6 inches of droppings are spread on the floor the length and width of the intended bed, and a barrowful or two of maiden loam mixed in among them. The whole is then well trodden all over. I may here remark that the loam should neither be too dry nor too wet, it should be nearly in the same condition as soil that is fit for potting plants; I may also remark that the droppings should also be in the same condition. When the whole has been made tolerably firm by treading, a few inches more of droppings are placed on it, mixing some loam with them; this also is made firm by treading or beating; a fresh layer of droppings with loam mixed is added and made firm, and fresh additions are made until the bed is of the required depth, which is, for autumn work, from 18 to 20 inches; for winter, from 2 to 3 feet. The surface of the bed is made level, and a few pointed sticks are then thrust into it. If the materials have been in a fit condition and plenty of loam used, the beds rarely ever heat to an excessive degree. In general I have them spawned a week or at most ten days after they are made, and immediately afterwards I have them earthed up with good loam. Of course such beds are made under my personal superintendence. When the droppings have been fit, I have made beds, and spawned and earthed them all in one day, and with the most satisfactory results. Indeed, I have a bed which has been in bearing for several weeks past, that was made, spawned, and earthed up on the last day of September. Of course I do not recommend this plan for general adoption, I merely mention it to show that Mushrooms can be grown in abundance on beds made, spawned, and earthed up on the same day, when the materials are in a proper condition.

By using plenty of loam there is no fear of the droppings heating too much, and there is a gain of ten days or a fortnight, which is a matter of some importance occasionally, when Mushrooms may be wanted by a certain day, and the making of the beds has, from a pressure of other work or various causes, been put off ten days or a fortnight too long. I put the spawn in about 10 inches apart every way all over the beds, using pieces a little larger than a hen's egg. Smaller bits will do, but I think the larger size the safer, as in case the beds heat a little too much they will not suffer injury to the extent that small pieces may. The spawn in the latter may all be destroyed by a little extra heat; but if the pieces be tolerably large, it seldom happens that the spawn in the centre is all destroyed unless in cases of very great heat, which will rarely occur in beds made as mine are, with the droppings not too moist and plenty of loam mixed with them.

About six weeks after the beds are spawned and earthed up I have plenty of Mushrooms. Sometimes they will come a few days sooner, and at other times they are a few days longer. After the heat begins to decline I always keep the beds covered with dry hay, regulating the thickness of the covering according to the heat of the bed, the temperature of the shed, and the weather. By this means, and by paying some attention to the condition of the loam used in mixing with the droppings, also to that used for covering the beds, I very seldom have recourse to watering these. I have very little trouble with

the beds after they are made and spawned. I obtain an abundance of beautiful Mushrooms, and I have some beds at the present time one mass of Mushrooms. Of course plenty of good horse-droppings is the main point, and getting them fresh from the stables and spreading them out in a shed, then mixing plenty of good loam among them when making the beds. When these matters are attended to and the spawn is good, then Mushroom-growing is a very simple affair indeed. I am sure nothing can be more simple than my mode of growing Mushrooms, and its results are most satisfactory; I get plenty of fine Mushrooms, and rarely have I seen them better, even when very great labour has been bestowed on their culture.

I need hardly mention how useful a good supply of Mushrooms during the winter is to those who have to provide for the wants of a first-class establishment. Those who can get a tolerable quantity of horse-droppings and have any out-house, shed, or cellar where they can make some beds, need not hunt for plenty, if they follow the plan I have pointed out above. I may mention that I find it a good plan to make one large bed or two tolerable ones early in the autumn; one has then plenty of Mushrooms to start with, and by making beds at intervals of a month or six weeks the supply is easily continued through the season.

Stourton.

M. SAUL.

PHAJUS GRANDIFLORUS.

WHAT a glorious old Orchid for winter-blooming—suitable for vases and in-door decoration as well as for the warm conservatory! It looks admirable in any position, its majestic spikes towering above its Flag-like foliage! A dozen well-grown and well-bloomed plants of this, with the same quantity of the charming sweet-scented *Zygopetalum Mackayi*, will beautify and perfume any house of moderate proportions, and that amply enough to gratify the fastidious senses of an eastern monarch.

Those who possess a plant-stove need not despair of growing and flowering the *Phajus* most successfully. Some old plants at this place, which, I believe, have been inmates of the Pine-stoves for the last twenty years, bloom annually most profusely, and are in as good condition now as ever they were. The cultivation of the *Phajus* is so extremely simple and so well known to all who grow plants, that I consider it would only be uselessly taking up the valuable space of the *FLORIST AND POMOLOGIST* to enter into minute details. I would, however, remark, that I find it most advantageous in order to bloom this Orchid successfully to remove the plants for three months in the height of summer to a cooler position—say under the shade of Vines in a late vinery—that is, after they have completed their growth. This, I consider, as far as my practice goes, to be the main point in order to ensure success. A No. 24-sized pot I consider large enough, for if flowered in larger sizes the plants are, in the majority of cases, useless for in-door decoration. A few larger plants will answer in a large house.

Wrotham Park, Barnet.

JOHN EDLINGTON.

CULTURE OF THE NEPENTHES, OR PITCHER-PLANT.

A FEW remarks on these wonderful plants may not be out of place, for we seldom see them grown at all, and still more rarely in a flourishing condition.

The plants here are grown in boxes a foot from the front lights, and immediately over the hot-water pipes in the *Amherstia*-house, and of course obtain

a high moist temperature the whole year. Early in spring I removed the old soil, which was in a very sour state, put a large quantity of broken pots at the bottom of the boxes for thorough drainage, and replaced the soil with lumps of very fibrous peat, charcoal, silver sand, and live sphagnum chopped into about one-inch lengths. I gave the plants a good watering, and sponged them twice a-day, keeping the floor continually watered, and the evaporating-troughs full of water, maintaining at the same time a temperature of from 70° to 75° at night, and from 85° to 90° by day, with shade from bright sunshine.

The plants soon commenced to root and grow. Young shoots started from all the old hard wood, and had a pitcher at each leaf. The boxes were soon full of roots, and from the loose nature of the potting material and the continual watering required, the soil sank below the top of the box an inch or more. A top-dressing of baked cowdung, chopped into about half-inch pieces, and mixed with silver sand, was therefore given; also a covering of chopped live sphagnum to make the surface look neat, and to encourage the roots to that part. The plants made a wonderful growth, so much so that there is not space to train the shoots, but the house being enlarged will give more training space.

I give these few hints to show the benefit arising from the use of live sphagnum for plants in general requiring moss, for there is no comparison between the vigorous growth of Orchids, Sarracenias, &c., in the live, and that made by them in the dead and partially decayed material; also, that some plants generally grown in poor light soil when in good health and vigorous growth, will flourish in a rich soil if the drainage is good and watering is carefully attended to.

J. T.

POTATOES.

A SMALL collection of Potatoes, exhibited at the recent International Show at South Kensington by the Rev. G. W. St. John, Woodstock Rectory, deserves a special notice both for the interest attaching to the collection, as well as for the really admirable way in which they were staged. The sorts were Daintree's Seedling, second early, a wonderful cropper and very good-looking, and Hogg's Coldstream, first early, a very fine-looking sort, said to be very good indeed for small gardens where only one sort is depended on. Both these are round white Potatoes, and were awarded first-class certificates. Daintree's Seedling was also shown as two kidney-shaped kinds, the one an improved Lapstone-shaped root, and the other a longer and thinner kidney-shaped tuber. These had been selected from the parent round variety, and were both awarded first-class certificates. A good-looking early half-round variety was named Beehive, and was said to be a seedling from the Fluke. A very handsome and good-sized round variety was named Fenn's Onwards; it is a new seedling second early Potato, the result of a cross between Jackson's Seedling and the Fluke; it was awarded a first-class certificate. The raiser is the author of those instructive papers in recent Numbers of the "Journal of Horticulture," signed "Upwards and Onwards," an admirable motto for a practical horticulturist. Of other white kidney-shaped roots there were some excellent tubers of the old Cobbler's Lapstone, a good second early; some fine specimens of the original Fluke Kidney; British Queen, a first-rate sort, but which produces coarse foliage, and should therefore be grown on a poor soil; and Shutford Seedling, a medium-sized root, Lapstone-shaped, and a good forcer. To each of these four kinds first-class certificates were awarded. Two other white kidney-shaped roots were Huntingdonshire Kidney, supposed to be a synonyme merely, a medium sized, but very handsome bulb, and Mitchell's Early Albion, a good forcing kind. Some admirable specimens of the old Fortyfold were also produced; it is said

to be one of the best varieties for mashing for the dinner table. The only red kidney-shaped Potato was Haigh's Seedling, a second early; it has a spare foliage, and though not a large cropper, the individual tubers are large and very heavy, and it is also one of the most nourishing varieties grown; to this a first-class certificate was also awarded.

The manner in which these were named furnished an instructive lesson to exhibitors, each label being fastened to the dish in such a manner that it could not become detached, and the methods of writing and affixing the labels presented a marked contrast to the slovenly manner in which some other collections were named.

R. D.

NOTES OF THE FLORAL AND FRUIT COMMITTEES.

January 23rd.—This was the first meeting of the year, and proved to me a most interesting one. Prominent was a splendid collection of plants from Mr. W. Bull, of Chelsea, which occupied more than one side of the Council-chamber. Generally they were ornamental-foliaged plants out of bloom, but of a very choice and valuable character. The Lindley medal was awarded to Mr. Bull by the Society for the group. Conspicuous was a pan of a species of *Achimenes*, remarkable for its very handsome foliage, the leaves being bronzy green, with a broad stripe up the middle of a creamy white colour. There were also some handsome female plants of *Aucuba japonica* with large bright red berries; *Chamæranthemum reticulatum*, from Brazil; *Pandanus ornatus*, to which a first-class certificate was awarded; *Anthurium magnificum*, *Herrania palmata*, a very handsome pendulous-foliaged Palm-like plant, to which a first-class certificate was awarded; *Gleichenia hecistophylla*; a white variety of *Dielytra spectabilis*, from China; *Gymnostachyum Verschaffelti*, &c. From Messrs. A. Henderson & Co. came a very handsome variety of *Lastrea Sieboldi*, which was awarded a first-class certificate.

A special certificate was awarded to Mr. Veitch, of Chelsea, for an extremely interesting group of flowering Orchids, and other plants. It comprised several beautiful varieties of *Lycaste Skinneri*, the marking in a few cases being very rich indeed; *Barkeria Skinneri*; *Odontoglossum cordatum*; *Angræcum eburneum*, to which a special certificate was awarded; the beautiful *Cattleya Warscewiczii delicata*, *C. bogotensis*, &c.

Mr. B. S. Williams also received a special certificate for fine plants of *Angræcum eburneum*, *A. eburneum virens*, and what was said to be a variety of *Calanthe vestita*, in this case the spot in the flowers being of a deep gold colour; and a first-class certificate for *Cattleya species nova*. From Mr. W. Earley, of Digswell Park, came a seedling *Begonia*, named Earley's Hybrid, with large and striking pink blossoms. Dr. Pattison, of St. John's Wood, produced a plant of *Angræcum sesquipedale*, with two expanded blooms; and from James Bateman, Esq., of Biddulph Grange, came *Phalænopsis amabilis*, *Dendrobium moniliforme*, *Thibaudia macrantha*, and *T. bracteosa*.

But little fruit was present at this season of the year. Some Uvedale's St. Germain Pears were sent by Mr. George F. Wilson to show the colour that can be obtained in an orchard-house. A first-class certificate was awarded to Mr. R. H. Betteridge, of Abingdon, for a medium-sized good-looking seedling Pear, the flavour of which was said to be excellent. There were also present fruit of the following Pears: *Beurré de Flandre*, *Suzette de Bavay*, and *Eliza d'Heyst*. The following Grapes were sent by Mr. W. Tillery, of Welbeck Abbey, to show their keeping qualities: *West's St. Peter's*, *Trebbiano*, *Welbeck Black Tripoli*, and *Muscat of Alexandria*. Some fruit of *Pyrus nepalensis* were sent from Southampton by Mr. W. B. Page, sen. The Rev.

M. J. Berkeley stated that the genus *Pyrus* was supposed by some to be identical with *Cydonia*, and it did indeed differ from it, mainly in the form of construction of the seed-vessels. He also stated that the fruit of *Pyrus nepalensis* would no doubt be useful for preserving, but was too hard to be eaten as other fruit for dessert.

At the meeting for the election of Fellows, &c., presided over by Lord Henry G. Lennox, M.P., a paper was read by Mr. Hungerford Pollen, F.R.H.S., of the South Kensington Museum, "On the Management of Plants, Fruits, and Flowers for Exhibition." Mr. Pollen contended that foliage plants and plants in flower should be grouped together and not separately, as is generally done; and he thought this could be done without destroying the effect of either as a group. In the arrangement of plants he would have Nature imitated as far as possible, and in the first place in regard to the quality of the light thrown upon them. This gave rise to the question, Should plants be exhibited in a building, in arcades such as those employed at South Kensington, or under tents? He had a decided preference for tents. Nature diffuses light all round her objects, not merely on them; while in regard to works of art, it was necessary to concentrate the light in parts only in order to get shade. Flowers are not done justice to unless an extraordinary quantity of light is brought to bear upon them. Thus the first great requisite is an abundance of light. Secondly, the plants should be mingled together, so that the bloom should be relieved by the foliage. The effect of Geraniums, for instance, without this aid, became in a great measure lost, a green background being required. The eye cannot take in such an excess of colour unrelieved, and parts of the effect are thereby lost. Thirdly, that on which plants should be shown. This should be Nature's green grass or turf. Boxes of grass were recommended to be used to furnish a background for many things. Fruit should also be exhibited on grass, while white paper should be used as a background for cut flowers. The Rev. Dr. Rock recommended the use of branches of the *Lycopodium*, or Lady Fern, as being well adapted to show to advantage the colours of fruit; and Mr. Wilson Saunders pointed out as another side to the question, the necessity of plants being so arranged that judges could decide which were the most meritorious; that plants should be so placed that the judges could come to a decision rapidly; and that while it was necessary that flowers should be made as attractive as possible to the eye, it was equally necessary that they should be made instructive, also which were the best plants in any section of the exhibition.

R. D.

CULTURE OF *LILIUM LANCIFOLIUM*.

NOTWITHSTANDING the immense popularity of the new *Lilium auratum* from Japan, the several fine varieties of *Lilium lancifolium* will always be great favourites, and most justly so, and I would urge cultivators to direct attention to these kinds, and try to get improved form and deeper colours. The late Mr. Groom, of Clapham, had he lived longer, would have introduced some improved strains, for I quite recollect seeing in his nursery in bloom, just before his death, some fine high-coloured varieties of improved form, the petals being quite free from curves or curls on the margin, and being, moreover, broader than they are in the *Lilium lancifolium* generally. All, or most of his fine stock of *Liliums* were distributed at the sale which followed his death, and some of the best strains are no doubt about, but difficult to meet with. Our chief aim in preserving the characteristics of this fine species and its varieties should be to continue breeding by seed from the finest-coloured varieties, with the view of getting

richer-coloured kinds and better form. I cannot say how much is to be done by crossing with other species, but I hope to see some of our florists try their hands at improving the existing varieties of the grand old *L. lancifolium*.

Great attention is paid to the culture of this Lily in various parts of Yorkshire, and it is astonishing what very fine examples are to be met with repeatedly at very small country shows in the autumn. It is no unusual thing to meet with pots containing from five to eight roots, with from fifteen to twenty superb blooms on each.

The plan generally adopted by good growers is to pot-up the roots early in February, using pots about 11 or 12 inches in diameter for three or four fine roots, and larger-sized pots for a larger number of roots, but I think it a mistake to grow so many roots in a pot when good blooming roots can be had. A good compost may be made up of fibrous sod, well-decayed leaf mould, and well-rotted frame manure, all chopped and not sifted, and with some sharp sand run in with it, so as to make a good porous compost. A good-sized crock and about 1½ inch of rough crocks should be used, and over these a few lumps of fibrous sod should be placed. Many make a mistake in potting too near the top of the pot. I prefer filling the pot with soil to within 5 inches of the top, on which the bulbs should be placed and covered, leaving fully 2 inches of space below the top, for this reason: Those who have given a moment's attention to the growth of the *Lilium* must have observed the quantity of young fleshy roots sent out from the base of the flower-stem, and to the full development of these roots especial attention should be directed. As soon as the shoots are of a moderate height, and have become pretty firm, fill up the pot to the rim with similar compost to that used for potting, adding a little more manure. This will give them an efficient top-dressing, and the stem-roots will speedily become matted into it, and the flowers will consequently become large and plentiful. The main point in the culture of the *Lilium* is to develop the stem-roots, a point too often lost sight of.

After potting they should be placed in a cool shed or frame, or under a stage where light is attainable; and as soon as the soil gets dry and cracks from the side of the pot, give sufficient water to moisten the soil without saturating it. Many allow the young growth to be started too early and become drawn, which should be avoided. The pots should rather be kept quite cool and exposed to the light, for the *Lilium* is a perfectly hardy plant, and should be grown hardy. The best plan is to treat it as an out-door plant as far as possible, by standing the pots out of doors after the winter is over, taking care to shelter them from spring frosts and blistering winds. Of course, at the blooming time they should be under cover in bad weather. When they have done flowering, the pots can be placed on their sides, and as soon as frosty weather sets in, removed to a dry shed, and be kept quite dormant, dry, and undisturbed until potting-time. Everybody knows what a glorious plant it is for autumn decoration.

Shipley, Yorkshire.

W. DEAN, in *Gardeners' Chronicle*.

CONCERNING PETUNIAS.

I DEVOUTLY trust that I am right in assuming that horticulture can now be credited with a desire to throw off the allegiance to those large and ungainly single flowers of the *Petunia grandiflora* section, and also those uncouth and uninviting double flowers which had their day, and with thankfulness be it said, a very short one too. It was simply a liking for mere novelty that made these double flowers popular—if such a transient career can by any license be translated into popularity. To beauty they could make but little claim. What

was there in them to fire a florist's heart with rapture and enthusiasm? And I hope, for the sake of true horticulture and its glorious past, all the poetry has not yet been, nor is it yet likely to be, pressed out of it, though rapidly ceasing to be a distinct branch of horticulture. At best, the double flowers were but malformations without pretensions to regularity of petal to give the desideratum of form, without harmony and distinctness of colours—flowers that would effectually puzzle the most competent judge to compile for them the points of quality by which he would decide on their merits. With but very few exceptions they did not yield that profuseness and continuity of bloom that are found in the single kinds. They were neither brilliant nor showy, and their utility as decorative plants was considerably over-stated. Let them perish! and may no resurrection ever rend the grave to which they will be consigned.

And then those hateful-looking, loose, irregularly-shaped, easy-flowering varieties, without a single pretension to form, but with a great deal too much substance, generally having the colours as inharmoniously blended together as to be quite confused, as if Nature had for once been guilty of a bad piece of artistic execution. In fact, the "beauty" of many of them was as little discernible as that of a toad would be whose skin had become slightly suffused with a violet hue. They were absolutely worthless as decorative plants, nor were they suitable for bedding-purposes. They have been well described by M. Ch. Naudin as "monsters, which the prevailing fashion regards as so many marks of perfection."

For bedding-purposes (and used as bedding plants, what can be much more attractive when judiciously grouped?) nothing can be better than a well-formed pure white flower of the *P. nyctaginiflora* species, and a good purple of the *P. violacea* species, and to these can be added the bright crimson variety with white throat like Countess of Ellesmere, and the parti-coloured variety Madame Ferguson. I remember a few years ago being much struck with the beauty of a Petunia-bed at Elsenham Hall Gardens, Bishop Stortford. The bed was formed of four lobes, each lobe being planted with a variety in the way of the foregoing colours, except that instead of using the variety with the white throat, there was a seedling bright crimson flower, something like Purple Prince, but having a throat heavily pencilled with clear violet. Though the weather had been, and still was excessively dry, the bed was a "blaze of floral beauty," and the afternoon sun beaming on it, brought out sharply and vividly the individuality of colour of each lobe of the bed, and at the same time merged this individuality into a blended harmony of a most agreeable character. From the intercrossing of the two species alluded to above, which can be done most readily, have been derived hybrids as fertile as their parents. Of these hybrids M. Ch. Naudin has observed, "In the first generation all these hybrids are alike; in the second they vary in the most remarkable degree, some reverting to the white species, others to the purple, and a large residue showing all the shades between the two. When these varieties are fecundated artificially by each other, as is the practice of some gardeners, we obtain a third generation still more parti-coloured; and continuing the process we arrive at (the most) extreme varieties." The fancy of the hybridiser will actuate him to select what form he pleases as his models, whether symmetrical in form and harmonious in colour on the one hand, or grotesque in outline and ill-defined and confused in colour on the other; but the variations that are to find a place in the garden should at least partake of the characteristics generally considered essential by florists—form, colour, substance, distinctness, &c., and not be hideous and unlovely formations merely, that have neither attractiveness nor utility to recommend them. To these essential points must be superadded by the hybridiser, short, stiff, and yet vigorous

habit; a propensity to flower freely; and as far as it can be obtained, a hardiness that can sustain to some extent, when bedded out of doors, the effects of a cold and inclement period that will occasionally bring up the rear of an English summer.

Quo.

THE ALBERT SPROUT.

THIS hardy Sprout promises to be a very useful addition to the kitchen garden. It is a hybrid between the Drumhead Savoy and the Brussels Sprouts, the head manifesting most unmistakeably the parentage of the former. The Sprouts, which are very large and a little blistered like a Savoy, are freely produced on the stalk, but as seen by me, not so near to the base of the stalk as in the Brussels Sprouts. Its unusual lateness is its great recommendation, being fit for use when other Sprouts are over.

T. K.

ON PROPAGATING CENTAUREA CANDIDISSIMA.

At the request of a lady who was on a visit here last autumn I send the following account of the way in which I propagate this *Centaurea*—a plant with which I was very successful last summer; and I hope that it may prove satisfactory to the readers of the *FLORIST AND POMOLOGIST* to know that this favourite plant may be increased with some degree of certainty, for I hear of many failures in propagating it in different quarters, instead of a good stock having been secured for planting out in May.

My own stock was but small, till I began to grow it in the same way as I have done *Cineraria maritima* for some time.

In May I plant a few of the strongest plants in some by-place for the purpose of furnishing cuttings, taking care that the soil is well enriched either with good rotten dung or leaf mould. By July the plants will be large enough to be used for making cuttings, which are made as follows:—

I take up the plants and cut them to pieces with a sharp knife; every piece with a leaf and an eye will make a plant. After having been prepared, the cuttings are laid on the potting-bench for a few hours that the wounds made by the knife may dry, and, consequently, that the danger of damping-off may be diminished, for the shoots of the *Centaurea* are very full of juices; on no account, however, should the cuttings be exposed to the sun, as they would flag and never recover. As soon as the wounds made by the knife have somewhat dried over, the cuttings should be pricked out under hand-glasses in a light rich compost, containing plenty of coarse sand. I prefer road sand and leaf mould in about equal quantities. The soil having been well mixed, and sifted through a rather fine sieve, some open spot should be selected for the hand-glasses, so that these may receive all the sun possible—by no means should they be shaded.

Immediately after the cuttings have been inserted they should be well watered, and the glasses ought then to be put on and kept close for some time. Very little water should be given to the cuttings till they begin to grow, which they will do in about six weeks. They should then be potted-off, using pots of different sizes, according to the quantity of roots which they may possess; some will require 48's, others small 60's but too large pots should not be used to winter them in. The cuttings after having been potted should be placed either in a close pit or frame till they have emitted fresh roots, and about the beginning of October they should be removed to the warmest and driest

end of the greenhouse or stove; if placed near the flue they will be much benefited by its proximity, as they suffer very much from damp during the winter. They then require little water, but when it is needed a good soaking should be given.

The *Centaurea* is a greater favourite with me than the *Cineraria maritima*, as it is more easily kept within bounds. I find that the *Cineraria* will not bear the knife without dying back; this spoils the effect of a good bed, as I experienced last autumn in the case of a bed filled with *Amaranthus melancholicus*, then *Cineraria maritima*, and *Perilla nankinensis* in the centre, the other side being the same. These were planted in strips, and the effect was very good and pleased every one till the *Cineraria* began to fail. This year I intend to use the *Centaurea* for the same purpose.

Elsenham Hall Gardens.

WILLIAM PLESTER.

THE PROPAGATION OF VERBENAS.

My design is not so much to develope any new method, as to give a prominence to what is well known to many, and yet may, perchance, be very acceptable to some. A good system or method is worthy of a wide propagation, and now-a-days preachers of all kinds are not required to declare so much what is new, original, or startling, as what is useful, to the purpose, and valuable.

The autumn propagation of Verbenas finds but few advocates, and is not generally adopted, except where necessity admits of no exception to its unyielding rules. The difficulty of autumn propagation lies in the great hazard attending the wintering of the plants. The method generally observed is to place a number of cuttings in 60-pots, using a soil in which there has been mingled a good quantity of coarse sand. In this they will root readily, and the path is smooth up to the time when these store pots have to be removed to their winter quarters. The position usually assigned them is a high shelf in a heated house, the shelf being so situated that the store pots can be close to the glass. They are watered very sparingly, are kept quite clean, have air on all occasions when it can be administered, and no drip is permitted to fall upon them. The great enemy mildew will attack them let them be wintered as they will, and this method is considered one of the best to moderate the ravages of this pest. How unsatisfactory such a method has proved to many a propagator the pages of the gardening publications have frequently attested. Many a man has looked over his stock at the beginning of March, and has marked with sorrow and disappointment how great an inroad decay has made among them. He loses his faith in the recognised formula which has been commended to him by many whose names are deserving of confidence; but he feels that he cannot stretch it to cover the experience gradually taking hold on him, that a new and more assuring method can be found and applied. This has been found, and, better still, applied with great success and the most cheering results. The operator, a gardener of considerable eminence in the north, shall develope his plan in his own words:—"Early in August a quantity of each variety of *Verbena* that I intend to use is struck not in heat, but in cold frames, without putting them in either pots or boxes. A layer of half sand, half leaf mould, is laid over the surface of the frame. Into this are put the cuttings, which are selected from the shortest and least-drawn from round the sides of the beds. They are kept close through the day, and sometimes in calm warm evenings the sashes are entirely drawn off for a few hours. They root under such circumstances almost without making any growth, or without becoming drawn. When rooted they are pricked into pans 7 inches deep and 14 inches in diameter. A few

crocks only are used at the bottom of the pans. A good layer of old Mushroom dung is then placed over the drainage, and then the pans are filled up with loam and finely-sifted horsedung, with a slight addition of sand. The cuttings are pricked into these about 2 inches apart, and placed for a few days in the cold frame, and are soon fully exposed night and day, except during continued rains. In such wet soil they make a very different figure to those struck in heat, and they are either left in the cutting-pots or potted off into small pots. If a system is to be judged of by its results, this method is all that could be desired."

To this outline of experimental doing is supplemented a statement of the fact that the plants "do not require to be picked over once—not a spot of mildew appeared on them," so satisfactorily does the method work; and not even Purple King, a variety that is very apt to be affected by mildew, was stained or discoloured by it.

From these plants come the cuttings from which are raised the plants required for "bedding-out." They are planted thus:—"The cuttings are put into large boxes which will contain 500 each, and as soon as rooted they are pricked off into [smaller] boxes, always using rich soil;" and here they remain till "bedding-out" commences, when they are lifted by the hand and placed where required. "Such plants fill their beds far quicker, and keep up a better succession of bloom than miserable rusty plants struck and kept in poor sandy soil till planted out."

This method, so simple, and yet so thoroughly satisfactory in its results, is best commended from such considerations. The plants from which it is intended to derive the "vesture of beauty" during the summer months should always be spring-struck, young, but vigorous and healthy. Autumn-struck plants should be employed only by the propagator, not by the bedder-out; for when the best possible effect is wished for they should not be employed to produce it. The young plants can be propagated to a great extent when such a system of wintering is attended with satisfactory results, and the stern necessity too often inseparable from the old system, which at best could only yield decimated ranks, of using old plants, will be in a great measure removed, if not wholly set aside.

E. W.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.

IN addition to the patronage of Her Majesty the Queen and H.R.H. the Prince of Wales, that of their Royal Highnesses the Duchess of Cambridge, the Duke of Cambridge, and the Princess Mary of Cambridge has been extended to this important undertaking. The Treasury have also granted the use of the site of the Great Exhibition of 1862 at South Kensington, for the purposes of the Great International Show, and tents, or a suitable building to the extent of three acres, will be required. Further, the Lord Mayor, Aldermen, and Court of Common Council of the City of London have unanimously granted the use of their ancient Guildhall for the banquet to the foreign visitors, &c. Each day the dimensions of this great undertaking appear to widen; and in May next a spectacle will be presented altogether beyond what has ever been witnessed in the annals of British horticulture. The donation fund already exceeds the sum of £3,400, and the guarantee fund that of £4,200, but a much larger sum than the former will be required, and there is no doubt will be subscribed, before the 1st of May next. All who are interested in

horticulture should endeavour to do their best to make the scheme a great national and horticultural success, and to show the superiority of English horticulture over that of any continental nation.

ON WASPS, FLIES, AND EARWIGS.

EVERY one knows that wasps have been scarce and flies plentiful during the last hot and dry season; and as heat favours the increase of both pests, it may be worth while to inquire why wasps have been scarce. It was not owing to the scarcity of queens to found colonies, for plenty of them were bred in the previous season, but rather to the fact of their having been cut off during the severe weather in March; and thus the old saying has failed, "A Plum year is a wasp year." Although, however, the fruit escaped the attacks of wasps, it has been much damaged by flies and earwigs. Wasps act the swallow's part among insects, and thus their scarcity may account in some degree for the abundance of both flies and earwigs. It is somewhat surprising to see how glibly a wasp can catch a fly—not by a crafty net like a spider, but by snapping it up with its mandibles. It will then carry off its prey with a clean swoop. In fact, wasps are hawking insects, and perhaps devour more flies and their eggs than large dragon flies, which are few in number, and only fly about late in the autumn.

Respecting earwigs, I am but little acquainted with their history, but the young are found mixed up with the old, are of a whitish colour, and increase in size with age, which shows that they are bred from eggs. I may note that all insects are of their full size when they come from the chrysalis; the slight difference in size between some of the same species is owing to that of the grubs before they passed into the pupa state. This reminds me that lately a friend sent me a large green grub of the death's-head moth, which fed on Ash leaves, and soon became a chrysalis. I kept it among soil in a flower-pot, covered with gauze, in a hothouse; yet though buried in the soil, it always managed to get to the surface. In about five weeks it was hatched, and is now before me, a fine specimen of that most singular-looking moth, and when teased it rises up and squeaks like a bat.

To return to earwigs: They have wings, but I never observed one fly, nor make the least attempt to use its wings when falling down. They hide, many together, during the day; but are also found in pairs or alone. It is at night that they do most damage, both to fruit and flowers. Various plans have been tried to destroy them, and perhaps the old one of placing hollow bean stems amongst wall trees, and in the morning shaking the pests out into a pot of water, is the best. I need hardly notice that of placing a small flower-pot on the top of a Dahlia stake, for that is well known.

Cossey Park.

J. WIGHTON.

NEW BOOK.

Les Plantes à Feuilles Ornementales en pleine Terre—Botanique et Culture.

Par COMTE LÉONCE DE LAMBERTYE. Paris: Auguste Goin, Rue des Ecoles, 82. Part I. Solanum.

THIS, as its title implies, is the first part of a work on those plants with ornamental foliage which are so extensively and successfully employed in the public gardens of Paris. For the most part natives of tropical or semi-tropical climates, they present a rich luxuriance of growth but rarely found in the vegetation of more northern lands, and this, combined with the novelty of

their forms, has been the foundation of that new style of gardening which is designated "sub-tropical." The North is ever at war with the South, ever seeking to wrest from it fresh spoils; not content with the rich fruits and gorgeous flowers of the South, the North must have all that is beautiful and good—the very leaves. These are the latest conquest, and to them, and to the culture of the plants they belong to, the work of M. le Comte de Lambertye is directed. He is known to be one of the most active and advanced amateurs in France, the author of an excellent work on the Strawberry, and in his hands the task is sure to be conscientiously and well performed.

He informs us in his preface that being struck with the effect produced by the tropical plants introduced into the public gardens of Paris by M. Barillet-Deschamps, to whom the work is dedicated, he commenced to form a collection which soon became sufficiently extensive for studying the characters and adaptabilities of these plants, that none is described which he does not possess, and that the mode of cultivation given is that which he has himself followed. The work is to be completed in three parts, of which the first is devoted to Solanums, the second is to be confined to Cannas, and the third will comprise all the other genera.

The Count commenced his collection of Solanums in 1862, and two years later he possessed seventy-six reputed species, but many of these were found to be incorrectly named, and others worthless; the result being that they were reduced to thirty, the number described, but not more than eighteen or twenty are of undoubted merit. The stem, leaves, flowers, and the fruit when it has been produced, are each fully described, and then the culture, followed by general remarks on the effect of the plant in an ornamental point of view. All the dimensions which are given have been derived from actual measurement. We shall here extract some remarks respecting a few of the most ornamental species, omitting the much fuller details given by the author.

Solanum amazonicum, about $2\frac{1}{2}$ feet high at the end of summer; leaves about 5 inches in length, as if powdered with golden bronze when young; flowers large, numerous, of a fine violet blue, produced from June till frost sets in. *S. auriculatum*, attaining $5\frac{1}{2}$ feet in height the first year, the shoots and the under sides of the leaves covered with white down; leaves 19 inches long by a foot across; flowers small but very numerous, violet and white; suitable for single specimens on lawns; when planted in masses from 3 to 4 feet should be allowed from plant to plant. *S. betaceum* attains in the first year the height of 3 feet, and has handsome leaves 16 inches long and nearly as much across, deep purple when young; suitable for planting in groups of three on lawns, or for massing along with other species at 2 feet or more apart. *S. citrullifolium* grows about 3 feet high by the end of the season: leaves small and elegantly lobed; flowers numerous, delicate lilac, produced throughout the summer. *S. crinitum*, known in many gardens as *fraudulentum*, grows 5 feet high in the first summer, and has leaves nearly 2 feet long, exclusive of the leafstalk 10 inches in length, and 21 inches across; both the shoots and leafstalks densely covered with white down. *S. enneadonton*, 5 feet high, and has elegant foliage, suitable for groups of three on lawns. *S. glutinosum*, one of the finest, grows 4 feet high in the first year, and has leaves 15 inches long by 9 across, of an orange tint when young; flowers $1\frac{1}{2}$ inch across, bright blue, numerous, and produced in long succession; forms beautiful groups of from three to five plants in each, and is also suitable for massing alone or associated with other species. *S. hyporhodium* grows 5 feet high, and has leaves 2 feet 9 inches long and 20 inches across, with pure white midribs, and of a fine violet purple on the under side. This is the *S. purpureum*, *S. discolor*, and *S. bicolor* of some, and *S. galeatum* of M. André. *S. Karstenii* (*S. callicarpum*

and fraudulentum of some), grows $4\frac{1}{2}$ feet high in the first season; leaves, including the leafstalk, sometimes $2\frac{1}{2}$ feet long and 19 inches across; a handsome species for planting as single specimens on lawns when two years old, when it attains $6\frac{1}{2}$ feet high. *S. laciniatum* attains the height of 10 feet at Hyères; very ornamental by its habit of growth, its large leaves, 2 feet long and 15 inches across, and its numerous bluish lilac flowers nearly 2 inches across. *S. macranthum* grows $9\frac{1}{2}$ feet high at Monceaux in a single year, and 13 feet high at Hyères; leaves, including the leafstalk, 3 feet long and 21 inches across; flowers 2 inches across, and M. Verlot saw one measuring $3\frac{1}{2}$, of a fine violet. *S. marginatum*, one of the most ornamental species, growing by the end of the season $6\frac{1}{2}$ feet high from seed sown in the preceding July, with leaves a foot long and 10 inches across; these when young are edged with white. *S. pyracanthos* grows from $2\frac{1}{2}$ to 3 feet high; leaves a foot long and 3 inches across, both these and the stems covered with numerous fiery red spines; the plant is of a light and elegant character. *S. quitoense* very ornamental foliage of a bright green colour, with amaranth-coloured veins. *S. robustum*, a noble species, growing 4 feet high in the first season, and having leaves 30 inches long by about a foot across; the shoots and under sides of the leaves covered with a yellowish ferruginous down, and the whole plant set with spines. *S. Sieglingii*, a very rapid-growing kind, attaining the height of 9 feet in a single season, making leaves 3 feet long, with a blade 26 inches long by 19 or 20 across; has a fine effect on a lawn or in the centre of large beds. *S. Warscewiczii*, one of the most ornamental of the whole genus, attaining the height of $6\frac{1}{2}$ feet in a single summer; leaves very large and handsome, with a very thick and spiny leafstalk 8 inches long, and a blade $2\frac{1}{2}$ feet long by 2 feet broad; has the finest effect when planted singly on lawns; requires a very warm situation and frequent watering. A cutting 6 inches long will by the September of the following year be a plant 6 feet or more high. The best time for striking cuttings is from November to March.

Such are the most remarkable of the *Solanums* described by Count de Lambertye, and each description is accompanied by concise cultural directions. The part contains representations of *S. crinitum*, *robustum*, and *Warscewiczii*, and concludes with a comparative table of the species described, showing their various characters, and the particular claims of each to cultivation. The work when complete will doubtless be very useful to all requiring information on the plants employed in sub-tropical gardening, and which are but little known to the majority of cultivators. That such plants can be successfully grown in this country and are capable of producing great results has been abundantly proved at Battersea Park; they have already risen high in favour, and will rise higher still as they become better known.

OUR CONTEMPORARIES.

OF these a goodly pile has accumulated, but we have only room to notice a few this month.

In *L'ILLUSTRATION HORTICOLE* for November, the first plate is a representation of *Aubrietia Campbelli*, raised by Mr. Campbell, of the late firm of Spary & Campbell, Brighton, and sent out by Messrs. E. G. Henderson & Son, of the Wellington Nurseries. M. Lemaire, the editor, considers that it has sprung from the well-known *A. deltoidea*; but whatever may be its origin, its violet purple flowers with a white eye will render it very ornamental in the spring and early summer months for beds, edgings, and rockwork; and the plant altogether will be a fitting companion to *Arabis albida*, *Draba aizoides*, &c.

Clianthus Dampieri flore albo rubro-marginata, another of Messrs. E. G. Henderson's plants, and sent out by them under the name of *marginata elegans*, forms the subject of the second illustration. The flowers being pure white distinctly bordered with bright scarlet, will form a splendid contrast with those of the now well-known species, which in other respects they resemble.

Royal Vineyard Grape is represented in the third plate. As this variety has been frequently exhibited by Mr. Williams, of Holloway, it is now tolerably well known; its merit, moreover, has been marked by a first-class certificate from the Fruit Committee of the Royal Horticultural Society. The thinness of the skin of the berries, and the fine Sweetwater flavour are two important claims to favour.

In the December part of the same publication we find

Oncidium bicallosum, originally figured in the "Botanical Register" in 1843. By some this has been considered a mere variety of *O. pachyphyllum*, and whilst M. Lemaire admits that the two come very near to each other, he thinks that the representations hitherto given have not done justice to its merits, and that even now the plant is not so general in collections as it should be, especially when the long duration of its flowers is taken into consideration.

Lilium formosum forms the subject of the second plate, and a full botanical description of the plant is given from the bulbs sent from Japan, to M. Verschaffelt, in 1864. The editor justly complains of the confusion which at present exists among the *Liliums*, and, therefore, cannot say whether the plant is a species, variety, or hybrid.

Cockade Asters, of the beautiful varieties raised by M. F. Haage, of Erfurt, are represented in the next plate; and in the fourth, *Camellia Contessa Pasolini*, raised by M. Antonelli, of Genoa, somewhat irregular in the form of its petals and in their imbrication, rose, shading off to white at the circumference. The leaves are small and lanceolate, and the plant tall.

A portrait of the late King of the Belgians is the last illustration in this part.

L'HORTICULTEUR FRANÇAIS for January, has a large plate of *Pandanus Porteanus*, introduced by M. Porte from the Philippines. The plant is of dwarf and elegant habit, and is said to be hardier than the other species. The leaves are long and narrow, from $2\frac{1}{2}$ to 3 feet in length, and less than an inch in breadth, gracefully curving downwards, glaucous on the under side, and set with white spines along the midrib, the upper side dark green.

"Flore des Serres," of which we have several beautifully illustrated parts, and some other publications, we must reserve till next month.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY. — The arrangements for the spring and summer Exhibitions have just been issued, and the following are the dates on which the Shows are to be held:—The first, for Camellias, Hyacinths, Tulips, Crocuses, Chinese Primulas, forced shrubs, &c., is to take place on the 15th of March; the second, for early Azaleas, Roses, Cinerarias, Auriculas, Cyclamens, &c., on the 12th of April; the third, for Stove and Greenhouse plants, Azaleas, Orchids, Pelargoniums, Roses in pots, &c., on the 3rd of May; and the Rose Show on the 28th of June. All these dates fall on a Thursday.

In addition, there are to be Saturday Shows throughout the year, at which money prizes are offered for various subjects, according to the period of the season. At a Show to be held at the same time as the International Exhibition, special prizes are offered by his Grace the Duke of Buccleuch, Mr. W. Wilson Saunders, Lady Dorothy Nevill, Major Trevor Clarke, Dr. Hogg, Mr. G. F. Wilson, Mr. A. Scrutton, and the Proprietors of the "Gardeners' Chronicle," the Council, except in the last two cases, giving one-half the amount of the prizes so offered as a second prize.

FLOWERING OF *DASYLIRION LONGIFOLIUM*.

—A plant, believed to be of this species, flowered last year in the Botanic Garden at Liège, and during the development of the scape observations were made on its rate of growth. The plant had a stem upwards of 3 feet high, and was first observed to be preparing to flower on the 18th of April, and on that day the height from the edge of the box in which the plant was growing to the top of the scape was 6 feet $8\frac{7}{10}$ inches. By 7 A.M. on the 19th it had grown nearly 2 inches, and by 5 P.M. $3\frac{1}{2}$ inches more. On the 20th at 7 P.M. the increase since the last measurement was $2\frac{3}{4}$ inches, at 5 P.M. $3\frac{3}{10}$ inches; 21st, 7 A.M. $2\frac{4}{10}$ inches, 5 P.M. $1\frac{3}{10}$ inch; 22nd, 7 A.M. $2\frac{3}{10}$ inches, 5 P.M. 2 inches; 23rd, 7 A.M. $2\frac{1}{6}$ inches, 5 P.M. 4 inches; and this was the greatest increase between any two observations. The height from the edge of the box was now 8 feet 11 inches, or an increase of 2 feet 2 inches in five days. The rate of increase now became slower, averaging for the next five days $1\frac{6}{10}$ inch from 5 P.M. to 7 A.M., and very nearly the same from 7 A.M. to 5 P.M. On the 29th at 7 A.M. the height was 10 feet $5\frac{4}{10}$ inches, and by the same hour on the 1st of May the increase was nearly 3 inches, on the 3rd about $1\frac{1}{2}$ inch, on the 5th $3\frac{1}{2}$ inches, on the 6th $2\frac{3}{10}$ inches, on the 8th $2\frac{1}{6}$ inches; the total height attained being very nearly 11 feet 6 inches. As will be perceived by the above measurements, growth was very rapid, and most so in its earliest stages, and the increase was a trifle greater by day than by night, and amounted to 4 feet 9 inches in twenty days.

SOPHORA JAPONICA VIOLACEA.—M. Carrière describes in a recent Number of the "Revue Horticole" a variety of this well-known hardy tree, in which the flowers are produced much later in the season, and instead of being cream-coloured as in the ordinary form, have the wings and keel of a rosy purple colour. It is, he states, a distinct, very free-flowering, and it may even be said pretty, variety. The tree under his care, though only $6\frac{1}{2}$ feet high and 2 inches in diameter of stem, produces a profusion of flowers, whilst the common *Sophora* only flowers when the tree has become tolerably large. This variety was received from China some years ago.

DORYANTHES EXCELSA.—In the periodical above quoted there is also an account of the flowering of *Doryanthes excelsa* as well as a coloured plate of the flowers. This species is a native of New South Wales, and although introduced to Europe in the beginning of this century, M. Houlet, the author of the article, states that it has only flowered five times—viz., in 1844 and 1833 in England, in 1862 at Orleans, in 1853 at St. Petersburg, and lastly in 1865 at the Museum of Natural History at Paris. It belongs to the natural order of *Amoryllidaceæ*, and has bright shining green

leaves, 7 feet long and 3 inches wide. These in the plant which flowered were upwards of eighty in number, and gave it the appearance of a handsome *Yucca*. The flower-stem rises from the centre of the tuft of leaves and attains the height of 14 feet, terminating in a panicle divided into eight parts, each containing from ten to thirteen flowers. These are about 5 or 6 inches across, and of a fine purplish red, with a bract at the base of a deeper red. Altogether the plant had ninety-six blooms. It first began to throw up its spike about the beginning of June, 1864, and the flowers began to open at the end of the following January; they appeared in succession up to the beginning of July, when the flowering ceased, but no seeds were produced. The plant then commenced to die down, and at the end of August it was quite dried up, but the stool afforded some suckers for propagation, like the *Agaves*, to which the species presents a considerable analogy in its growth. The plant which flowered was very old; M. Houlet had known it for a quarter of a century, and would not be surprised if it were eighty years old. It requires a temperature of not less than 50° , peat soil, and frequent re-potting. The roots, as thick as the little finger, are like those of the *Strelitzias*, and should not come in contact with the sides of the pot; a deep rather than a wide pot is required with plenty of drainage until the plant is large enough to be turned out in the winter garden, where it will produce a fine effect.

HIGH PRICES OF FLOWERS.—There was a great scarcity of flowers at Paris on New Year's-day, when it is the custom to present bouquets to friends, and when, consequently, they are in great demand. This year, owing to the failure of forced *Roses* and *Violets*, it is stated on good authority that *Rose du Roi* and *Rose de la Reine* sold at 15s. per bunch of two dozen, and that *Violets* cost from 4s. to 8s. per bunch. These were the prices which the growers asked, but at the shops they were, of course, still higher.

MR. J. W. MACKAY, the well-known nurseryman and seedsman of Westmoreland St., Dublin, has just been elected to the distinguished office of Lord Mayor of that city. It is pleasant to observe that horticulture can produce able citizens, fitted to fill the highest civic offices—a fact which has received illustration in the person of Mr. Charles Lawson, recently Lord Provost of Edinburgh, and now again in the person of Mr. Mackey of Dublin.

OBITUARY.

MR. THOMAS BRIDGES died on the 9th of November last, at the age of 60, whilst on his voyage back from a scientific expedition to Nicaragua. He commenced his botanical explorations in Chili, Peru, and Bolivia when only nineteen years old; and at a later period he made excursions in the Isthmus of Panama,

California, and British Columbia. Besides botany, ornithology, entomology, and conchology each received a share of his attention, and have benefited by his researches. He was a member of the Linnean and Zoological Societies.

MR. G. FRANCIS, Superintendent of the Adelaide Botanic Gardens, is also dead. His successor is Dr. Schomburgk, brother of the late Sir R. Schomburgk.

MR. HENRY SCOTT, for many years gardener to Wynne Ellis, Esq., of Ponsbourne Park, Hertford, died on the 5th of January. He has made a bequest of £200 to the Gardeners' Royal Benevolent Institution, to which he had been a subscriber from 1845.

MR. ALLAN BLACK, for some years Curator of the Herbarium at Kew, died on a voyage to the Andaman Islands on the 4th of December. In consequence of his suffering from lung disease he left Kew about two years ago

to take the superintendence of the Botanic Garden at Bangalore—a change which it was thought would do him good; but last November his health had become so much worse that he was recommended to go home by way of China or Australia, and while waiting for a vessel he took the trip on which he died.

DR. MONTAGNE, the celebrated French cryptogamic botanist, died on the 9th of January, in his eighty-second year. He served as a surgeon in the French armies till 1832, when he retired. He then took up the study of cryptogamic plants, at which he was so assiduous a worker, that for twenty years he devoted ten hours a-day to them. He described upwards of two thousand of these, and was the author of several works on the subject, and a member of the French Institute. He bequeathed his herbarium to the Jardin des Plantes, and his microscope and the reversion of his small fortune to the Academy of Sciences.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Stove.—Maintain only a moderate temperature, increasing it slowly as the days lengthen and light increases; if it reach 60° by the end of the month, enough will be done. Preparations for spring potting should commence by gradually giving more water to plants which have been rested; when the plants show when they will break, prune them in according to their habit; they should be allowed to grow for a short time before disrooting or potting, after which stimulate the roots by bottom heat and a moist atmosphere. Gloxinias, Gesneras, Achimenes, and similar plants of herbaceous habit may now be started. *Orchids*.—60° will still be the night temperature. There will, however, be no harm in allowing the thermometer to rise to 80° by day in bright sunshine, damping the house well at the same time. Continue to pot or re-dress all that show indications of moving before the growth has gone far, or the delicate young roots may be injured. Well soak plants on blocks or in baskets, as the general stock should, during this and the next month, be got into growth. Dry turfy peat, sphagnum, crocks, charcoal, and the rotten part off softwooded trees, should always be in condition for using, as potting should take place not all at once, but as the plants' growth demands it. Zygopetalums, Lælias, Bletias, and other plants, as they come into bloom, should be placed at the cool end of the house, and their flowers preserved from damp.

GREENHOUSE.

Admit air every mild day. Be cautious in applying artificial heat. Close early, with a little sun heat when you have the chance, to preserve a warm atmosphere. Look over the

plants every day to see if they require water; as the sap begins to move, more will be requisite: let it be a degree or two warmer than the house. Give weak manure-water freely now to Camellias and Azaleas, to enable them to bring out their flowers fine. Leschenaultias, Crowea saligna, and Boronias should have the warmest end of the house, away from draughts; light, however, is necessary. Kalosanthes and other succulent plants should occupy the driest part of the house: water only when dry. Train Tropæolums as the shoots advance. Kennedyas, Hoveas, Pimeleas, Boronias, Acacias, if wanted to bloom early, encourage by keeping them at the warm end of the house. Keep down insects by fumigating and soap and water. *Azaleas*.—Plants required for early bloom may be removed to the Peach-houses and early vineries; continue to fumigate plants infested with thrips, so as to eradicate the pest before young shoots are formed. Keep free from damp those remaining in pits or houses. Admit air freely in favourable weather. The judicious application of liquid manure will be beneficial to such as are confined for pot-room, or are swelling their buds. Those that have bloomed may be removed to a close pit. Be careful not to excite them too much, otherwise they will not form flower-buds for next season. *Cinerarias*.—Plants for late flowering should now have their final repotting; also plants for exhibition in eight-inch pots; there is no gain, however, by using so large a pot, a six-inch one being quite sufficient, in which the plants look neater and have a better effect. Look well to green fly, and clear the plants of dead foliage. Tie out the blooming shoots, if large dwarf plants are desired, and keep

them near the glass. *Ericas*.—The softwooded kinds will soon commence growth, and will therefore require an increased supply of water. Admit air freely on every favourable occasion, still adopting the plan of closing early; unless the weather should prove very severe, abstain from making fires. Many beautiful varieties will shortly be in bloom, and from this time we may calculate on its continuance for many months. Look to mildew on the free-growing sorts; apply sulphur immediately it makes its appearance. *Pelargoniums*.—Repot July plants into blooming pots, now that they have sufficiently broken after being stopped. May plants must be pushed along; a little fire occasionally will be found necessary, with air: by no means keep the house close. If water is required, see that enough is given at a time to penetrate the ball. A "little" water will ruin them, by only wetting the surface, instead of penetrating to the points of the roots. Young stock should also receive a shift. Fumigate the houses occasionally. Tie out the shoots of all plants that are becoming crowded, and give them all the room that can be afforded.

CONSERVATORY.

In arranging plants, aim at effect in the view from the principal entrance. In grouping, be careful to preserve perfect harmony of colour, selecting the most showy plants for conspicuous places, which may be set off with dwarf Palms, Ferns or Lycopods, Camellias, forced Chinese and hardy Azaleas, Rhododendrons, Roses, Honeysuckles, Deutzias, and numerous other plants, including bulbs, Neapolitan and Tree Violets, and Mignonette. Make it a rule to have the last three always in bloom, to mix with other plants for their fragrance; as well as *Daphne indica* and *rubra*, forced Orange trees, Musk plants, &c. *Calla æthiopica* is a nice plant at this season, if well managed; as are the perpetual or tree Carnations, being as useful for cut flowers as for their scent. Let such plants as go out of bloom have attention, if wanted for forcing another season. *Dahlias*.—The general stock should now be started in gentle heat. Tan or dung beds answer equally well for breaking them, or the tubers may be placed near a pipe in the vinery. If the tubers are doing well, and are likely to produce more cuttings than are required, destroy these for a time, as there is some trouble in preventing early-struck plants from becoming stunted.

PITS AND FRAMES.

Look over the stock of bedding plants, removing those varieties of which a further supply will be required to a warmer temperature, where they will soon push young shoots, which will strike freely. *Calceolarias*, *Petunias*, *Verbenas*, &c., wintered in cold pits require to be kept dry and clean. Remove all dead leaves. Give them all the air possible in dry weather. Water in the morning, and close

early after watering. Fumigate continually. In severe weather, should the frost penetrate the covering, let the plants remain covered until thawed.

FORCING.

Vines that have broken so much as to give indications of what the crop promises to be, should now be disbudded; and as the shoots lengthen, they should be gradually tied to their places. Maintain a steady temperature, not exceeding 65° by day, taking advantage of fine weather to allow a rise of 10° or 12°; frequently sprinkle the pipes and paths of the house, but withhold the syringe from the foliage; admit air gradually and with much caution. Allow Peaches to advance very slowly, especially in dull weather. Aim at having a free admission of air on all favourable occasions; and when the blossoms are expanded, partially thin them. Keep up a succession of Strawberries by placing another lot in the pit, or elsewhere, under cover; water cautiously those that may have shown flower, and by no means allow the water to remain in the bottom-pans, if they are so situated. Prepare beds for Cucumbers and Melons, if wanted early; and make successional sowing of Kidney Beans. Look to the bottom heat of Pines; those likely to show soon should have every advantage of light, with an increase of temperature, which, to ensure fine fruit, must be kept steady. Apply fresh fermenting material to successional plants; and have soil and pots in readiness to repot them towards the end of the month.

KITCHEN GARDEN.

If the ground is somewhat dry, and the weather is open, preparations must be made for the spring and summer crops. Ground still undug should be immediately turned over; and such pieces as have been rough-dug some time should be turned back with the five-tined fork, a better implement than the spade for thoroughly mixing the soil. Land intended for the reception of tap-rooted plants, as Carrots, &c., should be well worked to a good depth, that the roots may grow straight and clean. Look over early-planted Cabbages, Lettuces, and Cauliflowers, and fill up vacancies; pick off decayed leaves, and give air at all times; towards the end of the month get them hardened off for transplanting to warm, sheltered ground when the weather permits. Sow on a slight bottom heat, for future transplanting, Cauliflowers, Walcheren Broccoli, and Lettuce, as well as Celery for early use. If any spare frames are at hand, fill them with some fermenting material, and plant a crop of early Potatoes, and a few true Short Horn Carrots and early Radishes; the latter should be sown in the open ground at the first favourable opportunity, selecting the driest and warmest spots for them; cover the ground afterwards with dry litter till the plants are up. Towards the end of the month

ground should be prepared for Onions and Parsnips; the time for sowing will much depend on the weather. Onions prefer deep well-enriched soils, and Parsnips deep loams; do not be afraid of digging land too deeply, provided the subsoil is tolerably good. Peas and Beans must be sown for successional supply. Look over the root-stores, and see that seed Potatoes are prevented from growing, by keeping them thin in a cool temperature. Dress with soot or guano Winter Spinach, Parsley, and Cabbage, and sow a little of each towards the end of the month in a warm place.

FRUIT GARDEN.

Proceed with pruning wall trees, as well as trees in the open quarters. Apricots, Peaches, and Nectarines may be pruned and nailed-in towards the end of the month. See that matting, canvas, or other protecting materials are in order by the end of the month. They should then be placed before the above to retard the opening of the blooms, for by keeping these from opening till as late a period as possible, the chance of their setting is increased. Fruit trees of all kinds may yet be planted, observing to do this only when the soil is dry, or nearly so. Spread out the roots regularly, and mulch the surface after planting. Give a surface-dressing of rich manure to Strawberry-beds; do not dig this in, but allow it to remain on the surface: digging only destroys the surface-roots. Prune Gooseberry and Currant bushes; it is a useful plan to plant these in lines 5 or 6 feet apart, and train them to sticks espalier fashion. Clean up the prunings, and burn, or rather char them for top-dressings, and fork over the ground underneath the trees, adding dung or fresh soil when the land is poor or the trees are exhausted.

FLOWER GARDEN.

Wherever the soil has been displaced about the roots of Alpine and rock plants, add fresh soil, or replant them. Anemones and Ranunculuses may be planted, the former for a late bloom. Loamy soil, well enriched with rotten cow-manure, is the most suitable for them, and a situation shaded from the mid-day sun. Protect beds of Russian and Tree Violets from severe frost by sticking a few evergreen branches among them. Deciduous trees and shrubs may be planted in open weather. Evergreens had better be deferred till towards the end of the month, or till March. Turn over and prepare compost for flower-beds, &c. Roses may be planted this month with success. On the first appearance of green fly on the potted plants, fumigate with tobacco forthwith. The necessary temperature for forcing hatches the eggs of the Rose-maggot, than which a more destructive enemy to early bloom does not exist. The first intimation of their existence is a snuff-like powder on the points of the pushing shoots; there three or four may be perceived from amongst the

embryo leaves, and they must be closely hunted for, or they will escape detection; and it should not be forgotten, that one maggot will, before it is full grown, destroy many blossoms in their early stages.

FLORISTS' FLOWERS.

Auriculas.—Top-dress without delay with rich soil, and water more freely if the weather continues mild. The boxes should now face the south, and as the plants make growth, increased care and watchfulness will be necessary to protect them by covering during frosty nights; on all other occasions give them plenty of air, also light by cleaning the glass, which will be found necessary after so much covering during the late severe weather. Young plants wintered in small pots should be repotted, to encourage a vigorous growth. *Carnations and Picotees*.—These will require a general cleaning, trimming off all dead foliage. If mild, water those that are starting into growth, if at all dry. Should the majority be tolerably dry at one time, a gentle shower on a mild day towards the end of the month will greatly assist the plants. Keep the frames open as much as possible. Soil for blooming them in should be well and often turned, keeping it dry for use. *Fuchsias*.—Plants intended for specimens for exhibition should now be pushed along in gentle heat—if moist, so much the better—drawing the syringe over them during the afternoon. Young stock should be grown in heat, giving them sufficient room not to draw each other up weakly. Continue to put in cuttings. *Hollyhocks*.—Repot autumn-struck plants, using good rich soil to induce them to make stout, stocky plants, instead of starting prematurely into bloom. The plants being small is of but little consequence, so long as they are not “leggy.” Good cuttings, struck this month, if properly encouraged, make excellent plants, and flower in good time; therefore continue to take them from the old stools, and strike them in moist bottom heat. Seed should now be sown. *Pansies*.—Lose no time in repotting those intended for blooming in pots, the soil having been kept dry. Let the plants remain a week at least after they have been shifted before watering them. Give them plenty of air, and keep the lights off as much as possible. Plant out the general stock towards the end of the month, choosing a dry time. Plant out seedlings that have been wintered in pans. *Pinks*.—Stir the surface of the beds as soon as they are sufficiently dry, and fill any vacancies occasioned by winter from those in pots. After severe frost the plants should be firmly pressed into the ground. Pinks recover in a remarkable manner with a little fine weather, and therefore should not be destroyed hastily. *Tulips*.—Protect the bed from heavy rains or snow. Frost during February will do them little harm, unless the bed is in a wet state, and not properly drained.



Chrome-lithographed by F. Waller 1888 from a Garden

LOBELIAS.

1. *Peach Blossom.*

2. *Distinction.*

NEW LOBELIAS.

WITH AN ILLUSTRATION.

SOME twenty or thirty years ago *Lobelia fulgens* was a plant frequently met with in gardens, and had expended upon it a great deal of the sort of skill we now see devoted to the production of exhibition flowers. And well it deserved this attention, for a well-grown *Lobelia* is a really fine object. It is the partial disappearance of such flowers as this that one regrets, and that has, more than anything else, led to the comparative want of variety which is so much complained of in modern gardens. True, we had new varieties from time to time—scarlets fluctuating in appearance between *fulgens* and *splendens*, and purples after the type of the old *speciosa*, but they were comparatively little cared for. We are not without hope that this state of things may be changed. A contemporary, not long since, remarked on the same subject:—

“The *Lobelia* is, it seems, undergoing the same kind of improvement which is being effected in the case of other flowers, variety of colour as well as size being secured. Scarlets and purples we have long been familiar with, but other colours have till now been wanting, and, strangely enough, the plants themselves have been much less freely cultivated than their beauty has merited. Perhaps this has been owing to the absence of variety; but if so, we cannot but expect to see the perennial *Lobelia* rise again in popular favour, for in a box of seedlings which has reached us occur several decidedly new colours—pink, carmine, and ruby amongst them, with various intermediate shades.”

The flowers to which allusion is made in these remarks were obtained by Mr. Bull, to whom we are indebted for the opportunity of figuring those represented on the accompanying plate. A selection of twelve varieties will be sent out by him in the course of the present spring, and we hope to meet with them in general cultivation, for the *Lobelia* is in truth one of the grand old flowers which have been pushed aside by the thirst after novelties which has of late years set in; but we anticipate, now that this flower itself has yielded novelties of a very decided character, it may participate once more in public favour, and gain a new hold on popular esteem.

The varieties to be sent out this season are the following, as described by Mr. Bull:—

Annihilator.—Deep rose, shaded with warm violet. Novel and good.

Distinction.—Rose-cerise, with beautiful pink shade, distinct. A pleasing variety.

Excellent.—Bright magenta, with white eye and broad lobes. A very fine variety.

Garland.—Rosy purple; flowers large and well formed. Very attractive.

Glitter.—Bright glowing scarlet; huge flowers, spreading upwards of 2 inches across.

Matchless.—Rich purple, with bright rose suffused.

Mulberry.—Deep mulberry; flowers large. Free compact habit.

Nonsuch.—Upper segments violet-rose, margined with vermilion; under ones intensely bright. Very showy.

Peach-blossom.—Beautiful peach-colour, with fine, broadly-shaped, stout segments. One of the most attractive kinds yet obtained.

Progress.—Bright violet-magenta; of good substance. Large and fine.

Ruby.—Quite new in colour, being a very rich ruby. One of the most beautiful of all.

Theodosia.—Bright carmine; flowers very large. A superb variety.

The way these plants were grown into fine specimens in former days will

be seen by the following abstract from an early volume of Loudon's "Gardener's Magazine:"—"In November take off the suckers and pot them singly in 48-sized pots; plunge in a moderate bottom heat, and a temperature of about 55°. By the middle of January shift into larger pots, and increase the heat to 60°. By the end of February shift again, and increase the heat to 65°. In April shift for the last time into 12-sized pots; remove the plants to the vinery, and supply them copiously with water. About the beginning of June remove to the greenhouse or conservatory. For compost use equal parts sandy loam, leaf mould, and bog-earth. Under this treatment the plants grow above 6 feet high, covered with branches of several feet in length, all beset with a profusion of flowers. In fact they continue in flower from July to October."

THE PRIMULA.

How charmingly gay are these beautiful winter-flowering plants just now!—and what a pity it is that they will not bear a position in the window of a sitting-room better than they do! At this time of year I often walk through the centre avenue of Covent Garden Market to get a peep at the Primulas on sale there; and finer and deeper-coloured flowers can hardly be conceived. Indifferent flowers are rarely to be seen there, just because they would not command a sale.

Just now the Primula appears to be passing through a period of change. A little while ago, and large, stout, and finely fringed flowers of the single purple, and white varieties were thought to be almost the *ne plus ultra* of improvement; but now, in the hands of the skilful cross-breeder, not only are the single flowers being produced in shades of cerise and carmine, but also flaked and spotted, and even edged flowers are finding their way into notice. The old double white variety has passed into flowers suffused with delicate rose, and these again into heightened colours, until large and handsome deep-coloured purple flowers are springing up under the magic spell of the hybridiser. To mere outsiders, so great is the improvement that it may appear as a result of the magician's touch; but to the true florist, who sees in every fresh creation the operation of that inevitable law of progress working in every department of nature, it is the realisation of his bright hopes and ardent wishes.

A notable and well-known instance of variation in the single flowers was that observed in the variety known as *Primula sinensis kermesina*, in which a bright rosy carmine colour took the place of the dull purple shade so well known to all. As the seed of this variety was mainly obtained from the continent, the flowers were found in many cases to be devoid of the fimbriated edges so greatly desired. Now that seed of this variety—and it is a very pleasing and striking shade of colour—has been produced in our own country, the strain has greatly improved. This has been noticed during the past winter at the Horticultural Gardens, South Kensington, where Mr. Eyles has frequently exhibited some very fine and showy flowers of *P. kermesina* grown from seed of home saving.

In the hands of Messrs. Windebank & Kingsbury, of Southampton, who seem to be in the van of the advance of floricultural enterprise in the southern counties, the single flowers have appeared in some new, varied, and beautiful forms. Finding that the Fern-leaved varieties of *P. sinensis* possessed a greater strength than those in ordinary cultivation, they have used them in the course of their experiments.

It may here be stated that in all the beautiful variations the cross-breeder has developed, there appears to be no lack of size or substance in the flowers, nor

of that fimbriated edge so exceptionally demanded in this flower; for, as it was put by Mr. Thomas Moore in the pages of the *FLORIST AND POMOLOGIST* some three years ago, it is "a singular fact that, whereas in almost every flower which has been improved by cultivation, the process of improvement has been mainly directed towards securing smoothness of surface and margin, in this Primrose the old smoother-edged sorts are at a discount, and the modern improved ones all have fringed edges! It seems as if floral law, which is generally inflexible, has here given way before some other code."

The lowest form of the variations of the white flower (for to this colour they appear at present to be confined), appears to be that of being slightly suffused with rose, and in other forms there is a greater depth of colour, approaching to cerise, more or less apparent. Some of these flowers—as far as could be perceived those of the lightest and medium shades—have the edges of the fringed petals heavily tipped with rosy purple when the flowers are just expanded, and on a further examination it would seem that this deep edging of colour gets withdrawn from the edge into the body of the petal, so to speak, as the flowers age. Others are faintly spotted with carmine, or pencilled with just-perceptible narrow flakes of the same colour; in others the flakes are broader and more frequent, and have a lilac or pale purple hue, and occasionally a portion of one of the petals is entirely of the last shade of colour. One very novel form was plainly apparent, the flower having a conspicuous brownish-orange centre, surrounded with a ring of white, then a broad ring of pale rosy pink, the edge of the flower being again white. The flowers marked in this manner were remarkably stout and well fringed.

It was curious to observe in the Fern-leaved varieties that the colour of the leafstalks affords no clue to the probable colour of the blossoms, as in the case of the older kinds. This singular fact may be restricted only to those plants that have been crossed; but a fact it is, and that clearly apparent.

The largest and stoutest flowers of the white and flesh-coloured varieties were observed in some instances to possess the germ of a second row of fimbriated edges to the petals. From blooms of this character, fertilised with the pollen of others of a like character, had been developed double flowers of large size and great substance, produced by plants of short, stiff, and vigorous habit—a wonderful improvement on the attenuated specimens of the double white variety, the propagation and preservation of which have given the grower considerable trouble, and caused him no small amount of anxiety.

A few years ago a double variety of *Primula sinensis*, named *atro-rosea*, was exhibited by Mr. Turner, of Slough, at some of the London shows, and later, one of the floricultural sensations of the season was some double varieties produced by Messrs. F. & A. Smith, of Dulwich, two of which were considered to be so good, that they were figured in one of the illustrated gardening publications. It was said that they (the double varieties) could be raised from seed; but it would appear this statement was premature, inasmuch as the difficulty has been to obtain seed. Then, again, it would appear that in proportion to the depth of colour in the flowers, there was a certain diminution in the strength of the constitution of the plants, which necessarily interfered with their propagation. Such a statement as this appeared to receive verification from some double varieties shown by Messrs. F. & A. Smith, of Dulwich, as the deeper-coloured flowers looked to be of a weaker constitution than the white and flesh-coloured, while they were also less double. In the Fern-leaved varieties that are double white, there is observed, as has been stated before, a strength and robustness of constitution wanting in the older kinds, and when, as we are led to hope will be the case under skilful fertilisation, heightened colours in double flowers are produced, it will be interesting to note if there is any loss

of vigour resulting from the advance. It is said that the new varieties shown by Messrs. F. & A. Smith were raised by Messrs. Windebank & Kingsbury.

Nor is the *Primula* entirely free from a tendency to variegation. A few weeks ago some plants of single kinds, the foliage of which was variegated with a pale whitish green, were seen at one of the meetings of the Floral Committee at South Kensington. Messrs. Windebank & Kingsbury have a white variety, which is excellently variegated, a large portion of the leaves being of a yellowish green. It would seem, however, that the very effort to maintain the variegation renders the work of propagation very difficult, at least in their case. This variety is not of their own raising, as it was originally sent out by a London nurseryman. I fear but little will be gained to the *Primula* from variegation. Professor E. Morren observes that "variegated leaves (the partial disappearance of chlorophyll), are a proof of weakness;" and as there is need for imparting more vigour to the constitution of the *Primula* rather than detracting from it by encouraging variegation, it must be regarded as but a questionable advantage.

Quo.

COILING VINES.

THE veteran of Sawbridgeworth has been lately reviving an old practice, which, like many others, may have some points in its favour; but at the same time a great deal can be said against it. Its great advocate at one time was Mr. Mearns, who, at the time, was gardener at Welbeck, but was afterwards Curator of the Leeds Botanic Garden. Some of the discussions on the subject were ridiculous enough; but to compare them with the practice of pot-Vine-growing of late years makes them doubly so. There are, however, still people who, if not directly, to a certain extent follow some of the rules. At that time it was considered that by coiling a Vine in a pot it brought the fine nut-looking buds nearer the surface, that they broke better, and produced larger bunches. This is quite true, but unfortunately they are of little use when they come. The evil of the practice is that the sap has to travel through the long shoot buried in the cold wet soil, the moisture of which no doubt permeates into the alburnum and affects the sap accordingly, because, we find frequently, both in pot-coiled Vines and old stems laid in the soil a long distance, that the fruit comes on well, sometimes better than in ordinary Vines, up to the time of changing colour, when shanking invariably commences. If the stem of an old Vine before being laid into the soil is cut a little with a saw behind the joints, roots will strike out readily, and the same will be the case with canes coiled in pots; but these roots do not seem to have the same effect as the original; they frequently produce grosser foliage, but the sap does not appear to go through the same purifying process necessary to bring the fruit to perfection.

Something of the same sort of practice often goes on with growing Vines. A makes a good border and plants young Vines that have a large amount of fresh soil and chemicals to excite them into making a splendid growth, and at pruning-time the fine plump buds and large growth lead the operator to pause and consider whether it would not be better to leave some of that fine wood just to get a bunch or two; and that will prove in the end to be the ruin of the Vines, because the wood is not ripened, and never can be, and the consequences to the large fine bunches shown are the same as in the case of young Vines coiled; for although the cold, wet soil is not in contact with the stem, the sap is in a crude state, and when the ripening process commences so also does shanking. B makes the same arrangements as A, but instead of leaving the

canes long they are cut down to, say, the height of the front light, and the second year's wood alone is looked for. Many amateurs in commencing a little house and a Vine or two bring about this result on their first attempt, and from the Vines going on shanking from year to year, give up what might otherwise have been a source of great pleasure.

F.

REMARKS ON FRUIT TREE CULTURE.—No. 7.

It occurred to my mind the other day, in reference to my remark at page 20, that in the culture of pyramid fruit trees the operator has both a greater scope and facility for so regulating his manipulations, as to induce the formation of fruit-bearing spurs—that there are some guiding principles bearing upon the subject, which it may be useful to remember; and, therefore, before proceeding to remark upon the special treatment best adapted to each kind of tree, I must trouble those who are interested in the subject, to follow me a little more into those ruling principles, because it will smooth our future path, and enable the operator the better to understand the practical part.

In training out a young tree from the commencement—say against a wall, in the first instance, the operator should set before himself the object he has in view. The primary one, no doubt, is to get the wall as speedily as possible covered with healthy fruit-bearing wood; not merely covered with wood of which the fruit-bearing parts are the extremities of the branches, but with fruitful wood distributed equally from the centre to the extreme branches. This is the legitimate object to be kept in view, although we cannot always attain it, even under the very best and most careful management. We can do so for a series of years; but eventually the natural enlargement of the lower part of the branches springing from the central stem will become so great, that there is no room for fruit-bearing wood, and, therefore, a certain radius from the starting point will be devoid of fruit—more or less, according to the age of the tree.

Now, I must confess that I like to see a tree brought into that state where there is plenty of room for development, because, being in full health and vigour, there is something substantial to work upon, and the operator is enabled to take more liberties with the organisation of such trees, in order to influence their future development, than he can with younger trees which, having less development, have a weaker foundation to start from, and are more likely to resent interference with their functions by the production of wood instead of fruit. We must remember that trees do not naturally bear fruit in a young state, but must arrive at a certain stage, under conditions which I have already explained, before fruit-bearing commences. We can only, therefore, produce analogous circumstances in young trees by the process of checking, which of course weakens in the tree the power of development, and to us the power of influencing it; but, with care, this apparent evil cures itself in time, for as the development of parts increases, so also the strength to answer to treatment is increased. In fact, we cannot justly call upon a tree to do more than its strength is equal to without running the risk of materially injuring it; and, therefore, in placing the object in view before our mind's eye, we have to remember that the strength required to fill the wall must be husbanded, but not driven away, otherwise it will be expended at the extremities of the branches. And why is this, but because the tree possesses the tendency, which is common to all trees, to push outwards, and to fill up from the centre—in other words, to extend itself vertically, or upwards from the centre on one hand, and laterally, by the side branches, on the other? Now, the various manipulations to which

we subject fruit trees are mainly intended to counteract this tendency towards vertical growth, because of the limited space to which we are obliged to confine them; for the same reason we are chiefly dependant upon the lateral growth for fruitful wood, and, therefore, must perforce divert the flow of the sap from the vertical into the lateral growth; and herein we find one of those great causes which influence the production of great effects, and which is, in fact, a great secret in management.

In this tendency which most trees possess to grow vertically, we find the reason why good managers always recommended that the centre of trained fruit trees should at all times be kept open; but, whereas many of our predecessors in the profession depended upon winter pruning for the attainment of that object, the more modern system aims at arriving at the same end by the more effectual and rational mode of summer pruning, when the trees are in full growth.

It will thus be seen that the operator in placing before himself an imaginary perfect tree, has to bring a great amount of practical experience, combined with a certain portion of theoretical knowledge, before he can hope to see his ideas carried out; he will know that it is easy enough to cover a wall with wood when the roots have plenty of room for development; but as he wants fruit, and cannot afford either time or space for the tree to exhaust its energies, so as to arrive at a fruit-bearing condition in its own time, he must put in practice artificial methods to counteract natural tendencies. There are only two legitimate methods of doing this: One is root-pruning (see page 8), which may be called cutting off the supplies; and the other is summer-pruning, or cutting off the channels through which those supplies are conveyed and made available for future development. In order to understand this in a simple manner, we must take it for granted that a free development of roots can only take place when there is a correspondingly free development of branches covered with healthy foliage; and supposing the two to be in equal action, take away a portion of one, and the balance is immediately disturbed. Thus, by removing leaves and shoots we check root-action; and, *vice versá*, if we cut off roots, we check the power of making wood, the difference being only the season of operation; for as pinching and stopping are summer work, so root-pruning is very properly delayed until the trees are dormant.

These, then, are the operations by means of which the primary object of covering the wall with fruit-bearing wood must be attained; and the reason why there is more scope for the production of fruit-spurs in the culture of pyramids appears to me to be that there is no need to remove any of the surplus shoots, but that the whole may be subjected to the routine of pinching and stopping, in order to convert them into fruit-spurs. Trained wall trees on the contrary, which expose only one face to the light, and are limited as to space, must in many cases have two-thirds of the shoots entirely removed, and sometimes even more, otherwise the wood would become overcrowded. And, again, as the principal object of raising walls for the culture of fruit trees is to obtain the full benefit arising from the intercepted rays of heat, it is obvious that the fruit-bearing wood should be kept as near the wall as possible, because during the day it absorbs a great amount of heat, which is given out at night by radiation, and hence all foreright shoots, or such as have a tendency to push outwards, must be kept removed, all of which tends to lessen the space available for the production of fruit-spurs—not that I believe this to be any disadvantage, but the contrary, because, as I before observed, an excessive development of fruit-buds is rather to be avoided than encouraged. I like to see a reasonable amount of growing wood, as well as of fruitful, because then there is hope for a continuous crop; for a great development of fruit in one

season, if unchecked, is generally followed by a barrenness the next, which is a state of things by all means to be avoided. I think the foregoing observations have a material bearing on the subject, and indicate the primary principles on which the necessary practice must be founded.

Redleaf.

JOHN COX.

THE NEMOPHILA.

AMONGST hardy annuals, I suppose that there is none so extensively employed, and so universally known, as the above. If we pay a visit to the garden of the most humble cottager a few patches of this will assuredly meet our eye. Although its duration of blooming is rather short the *Nemophila* is, nevertheless, most attractive during the early summer months, and with repeated sowings at different times its blooming period out of doors may be considerably prolonged.

It is now some years since I saw it employed for decorative purposes in the conservatory, and I feel rather surprised it is not used for such a purpose rather more extensively, as it forms a most beautiful object, especially if bloomed during March and April. For this purpose, seed may be sown in September in small pots, say 60-sized, and the young plants wintered in a cold house as near the glass as possible. Three plants in a pot will be sufficient. In January, should the plants be required to be grown tolerably large, they may be shifted into pots of larger size, and removed again to the same quarters. It is absolutely necessary that they should be kept tolerably dry all through the winter, as over-watering will soon tell its own tale by causing the plant to assume a yellowish hue, a sure sign of bad health.

I find the *Nemophila* in pots thrives remarkably well in loam and well rotted leaf mould in equal parts, with a liberal addition of old mortar rubbish finely sifted. In this compost, if the pots are thoroughly drained and every attention paid, the *Nemophila* will grow as strong as the Ice-plant, and bloom most profusely, rewarding those who may not consider it beneath their notice to bestow a little care on such a simple, but, nevertheless, most charming annual.

Wrotham Park, Barnet.

JOHN EDLINGTON.

A FEW WORDS ABOUT ROSES.

I SHOULD much like to elicit the opinion of some of the practical contributors to the *FLORIST AND POMOLOGIST* as to the suitability of the *Manetti* as a Rose stock for dry soils. I have lately been reading a good deal that has been advanced as to its merits and demerits; but nothing that has been said seems to tally with my own particular experience, which unfortunately is by no means favourable to the *Manetti*; but in any case, whether I may be right or wrong, fair and impartial discussion upon a subject of such vital importance to Rose-growers cannot fail to prove advantageous to all.

I think there can be no question that the *Manetti* is the favourite stock of the nurseryman, because it affords him the quickest possible means of propagating a large quantity; and also because of its adaptability to all soils and situations so long as it remains the *Manetti* and nothing else; but whether it is equally suitable for permanent purposes, and possesses all those characteristics which enable it to perpetuate Roses in their fullest degree of perfection for a number of years, is a matter of the first importance to the buyer, and well worthy the most careful consideration.

The Roses, on the growth of which my observations were made, were

supplied from the nursery of one of the largest growers in the south, the mention of whose name would be a sufficient guarantee that they were all that could be desired as far as health, robustness, and proper working could make them; and therefore we may fairly start with this premise, that whatever has gone wrong with them must either have been the fault of my method of cultivation, or have arisen from causes beyond my control.

My Rose-bed is situated in a very warm and sheltered position. When first planted the soil, which is a yellow loam, was trenched 2 feet deep, and liberally supplied with a dressing of rotten manure and scrapings from the roadside. The plants when received were remarkably strong and vigorous, but the shoots, being of very rapid growth, were necessarily pithy, and therefore not so well able to withstand the severe pruning that newly planted Roses must undergo. One that was particularly pithy, *Evêque de Nîmes*, died without starting a bud; but the remainder, having been mulched with half-rotten dung and liberally watered, managed to grow on, and bloomed in the summer pretty well. Unfortunately, however, with continued drought came a lack of water, and as a matter of necessity they had to be left to shift for themselves as best they could, and as a consequence I got scarcely any autumn bloom. During the ensuing winter, I forked in a good dressing of manure, and, after pruning, a top-dressing of soil from an old Cucumber-bed. The early part of the last summer, not having been so dry as the preceding one, I had a very fair amount of bloom; but the hot month of September once more exhausted our waterworks, and carried death and desolation into the midst of my Rose-bed; several were quite dead, others too far gone ever to make good plants again; and not one of those worked on the *Manetti* was anything to boast of.

Now, after this paragraph of failures has been read, I shall be asked, I imagine, "Did you bury the stock in the soil?" To this I reply, Yes. "How did you prune?" Hard the first year, and sparingly afterwards; as they never produced growth at all equal to what they did at the nursery. "Did you mulch the roots?" Yes. "Then how about moisture?" Well, really, this is my weak point, for situated as my garden is upon the saddle of a ridge, with a fall on either side, having from 2 to 3 feet of soil on the surface, with 12 feet of gravel under that, and where the water in the wells falls from 6 feet in winter to 36 at midsummer, some of them becoming quite dry by August—it must be confessed that I am not cultivating the Rose under the most favourable circumstances, especially when worked on the *Manetti*.

Now, I have not written this much simply for the purpose of depreciating the character of the *Manetti* as a stock. I have no doubt that in some situations it is all that can be desired; but this can only be where the soil is well adapted to it. All Roses do not do badly with me; because I have growing on their own roots a large number that have done remarkably well, and promise, at the present time, an abundance of bloom next summer. Among the Roses which I had from the nursery were a few on their own roots—viz., *John Hopper*, *Beauty of Waltham*, and others; these were planted in the same bed with others on the *Manetti*, and they have thriven in a way that affords a marked contrast to the latter. But the most direct confirmation of my belief that Roses on their own roots succeed better than those on the *Manetti* in dry soils, is to be found in a row of the former which I planted in the hottest situation in my garden, from whence I had previously grubbed out an old Laurel hedge; they were a mixed collection of Bourbons and Hybrid Perpetuals of my own striking, and the strong and redundant growth which they made in the course of the first season after planting, under even a less generous treatment than those on the *Manetti* received, has astonished as much as delighted me. I had some very fine blooms from these, especially in the

autumn ; and now, thinking that it would be an act of vandalism to cut away all this luxuriant growth, which under the ordinary mode of pruning I should have done, I have, instead, adopted the plan so strongly recommended by Mr. Perry some time since in the *FLORIST AND POMOLOGIST*, of pegging down, having first taken out the smallest shoots, and taken a few inches off the tops of the stronger ones as the case might require. Judging by present appearances, I may anticipate a large display of bloom during the ensuing season, superinduced by this method of treatment.

Roses are by no means difficult to strike, especially where a little ordinary care and forethought are used. Almost every Rose-grower has his own particular plan ; mine is as follows : Early in November, when the plant has shed its leaves, and the wood is well ripened, I take off for cuttings what wood can be spared without absolutely pruning the tree ; it is cut into lengths of about 6 inches, carefully named, and the cuttings are inserted almost as thickly as possible in an old frame in which a compost of road grit and mould has been placed. Bury the cuttings about half their length in the compost, take care to keep them as close to the glass as possible, and throw a mat over this in severe weather, but when fine and mild give them all the air possible ; this will help to mature the wood, and assist in callusing. By the beginning of March it will be found that the majority of the cuttings will have done so. At this time take advantage of open weather, and transfer the whole to some well-prepared ground in a sunny situation. Stretching a line, make a cut with the spade by its side, half fill up the shallow trench thus formed with sand or road grit, place the cuttings about 6 inches apart in the drills, 12 inches from row to row, tread them firmly in, make all neat, and then leave them to their fate. I feel satisfied, from my own experience, that those who may adopt this method of propagating Roses on their own roots will not be disappointed.

Maybush.

A. D.

CULTURE OF MELONS IN POTS.

WHAT I propose is to set up the growth of Melons in pots in opposition to beds of soil. By this method we know they can be brought to the highest state of perfection without any difficulty in low narrow houses, and I cannot see any valid reason why the same result may not be obtained in brick pits, whether bottom heat is supplied by hot water or fermenting dung. Let us adopt the latter means of heating, which is the more common of the two. The dung bed should be made in the usual way, and when the heat has subsided to about 85°, the pots may be safely plunged up to the rim, they being filled with rather adhesive soil, mixed with a fifth part of rotten manure, kept high enough to produce a slight elevation above the general surface, so as to prevent the accumulation of moisture at the neck of the plant. Pot-culture restrains excessive growth, and does away with the necessity of constant stopping and thinning, and were these the only advantages something would be gained ; but there is another to which I would wish to direct special attention, and that is a reduction in the consumption of soil. Some gardeners are so favoured that it may be had *ad libitum* ; but with the majority, when a supply is required, it is begrudged, and should the application not meet with entire rejection, the gardener is referred to some uncongenial corner where he is obliged to skin off the most suitable patches here and there. Should crops fail, and plants die, or become sickly, the subject of nourishment is never thought of, or disregarded, and the whole blame is thrust upon the operator's unsuccessful management.

What is used is that known among gardeners as an 18-inch pot, and as

six will be required for a pit 20 feet long, we find that they contain nearly 12 cubic feet of soil. A pit of that length, and 6 feet wide, filled 18 inches deep with soil, which is about the average quantity employed when Melons are planted out, amounts to 180 cubic feet, hence there is a surplus of 168 feet. As the surface of the bed, however, requires to be covered 2 inches deep with soil for the shoots to run upon, then 20 feet subtracted from 168 leave a residue of 148 cubic feet. Let us repeat six successional crops during the season, and we find that no less than 888 feet of soil are saved.

The economy of soil is one advantage, and a great one too; but the pot system does more—it very materially lessens labour, and prevents exposure, as is the case when the roots are moulded up. What I have stated I have practised, and I can therefore assert the advantages with confidence.

Tortworth.

A. CRAMB.

ROYAL HORTICULTURAL SOCIETY.

A SERIES of small exhibitions to be held on Saturdays in the conservatory of the Society at South Kensington are fast growing into interesting meetings. Small prizes are offered, which are yet a sufficient inducement to exhibit; and as the season advances, and flowering plants get abundant, some very pretty displays may fairly be anticipated.

FEBRUARY 10TH. — A miscellaneous group of flowering plants from Messrs. W. Cutbush & Son, of Highgate, made the centre of the conservatory very gay and attractive. Among them were nicely flowered plants of *Rhododendron Cunninghami*; dwarf compact bushes of *Prunus sinensis flore pleno*, an admirable plant for forcing, the branches being thickly studded with pure white flowers; *Azaleas Taylor's Red* and *Nosegay*; *Polygonatum vulgare*, *Dielytra spectabilis*, &c. Of bulbs there were Hyacinths in large pots, containing six plants each, which were very striking: the sorts were, *Grand Vainqueur*, *Grandeur à Merveille*, and *Voltaire*, single whites, but different shades of colour; *La Tour d'Auvergne*, double white; *Orondates*, single pale blue; and *Amy*, single bright red. These are apparently early-flowering kinds. The following kinds of Tulips were also shown, twelve in a pot, and were remarkably gay: *Tournesol*, double, and *Vermilion Brilliant*. Of Crocuses, there were *Albion*, dark purple-striped, very fine and showy; *Giant Yellow*, pale in colour; and *Elfrida*, a white variety, but having faint purple lines on the insides of the flowers. Mr. W. Young, of Highgate, had some ornamental and flowering plants, including Hyacinths, *Yucca aloifolia marginata*, *Dracæna Cooperi*, *Epidendrum cochleatum*, &c. Mr. W. Bartlett, of Hammersmith, an amateur, showed some Hyacinths and Narcissi; some of the former had good spikes, but the foliage was too much drawn.

A very interesting collection of *Primula sinensis* in variety came from Messrs. F. & A. Smith, of Dulwich, consisting of both double and single flowers. Of the latter there were *P. sinensis fimbriata carminata*, with large, stout, well-fringed flowers, suffused and flaked, and faintly spotted with carmine; *alba superba*, very large fimbriated flowers, pure white when young, but slightly tinged with pink when older; *purpurea oculata*, the centre brownish orange, the flower deep purple, with white spots—as shown it was but indifferent; also *P. filicifolia rubra*, with very fine rosy red flowers. Of double flowers there were *plena incarnata*, centre bright rosy pink, paling off to pure white, fimbriated edges—large and double; *Queen of England*, centre suffused with pink, the smaller and weaker flowers being pure white—very double; *Fairy*, not so double as the preceding, but in a kind of transition state, as the orange centre of the single flowers was quite conspicuous—centre pink,

with faint flakes of the same colour, fimbriated edges ; and *kermesina splendida*, rosy carmine cerise, the flowers being semi-double only.

FEBRUARY 17TH.—On this occasion, also, Messrs. W. Cutbush & Son made a very effective display with spring-flowering plants. A collection of Crocuses included Albion, striped ; Giant, yellow ; Elfrida, white ; Versicolor, striped ; and Prince Albert, a very fine purple. A collection of twelve Hyacinths was made up of the following kinds : Queen of the Netherlands, Mirandoline, Mont Blanc, and Grandeur à Merveille, single white ; Lord Wellington, double red ; Garrick and Laurens Coster, double blue ; and Duchess of Richmond, single red. A collection of forced bulbs included Vermilion Brilliant and Scarlet Van Thol Tulips, the former double the size of the latter, besides being of a very different formation ; also, Yellow Prince, White Pottebakker, and Tournesol, double ; Polyanthus Narcissi, Belle Princesse, and States General, yellow, with orange cups ; and Gloriosa, white, with orange cup ; some Hyacinths, &c. Also a miscellaneous collection of flowering plants, comprising Magnolia Soulangeana, Franciscea eximia, double-flowering Plum, Rhododendrons, Azaleas Louise Margottin and Queen Victoria, &c.

Mr. Bartlett also had Hyacinths and Narcissi, unnamed, and the following Tulips : White Pottebakker and Vermilion Brilliant, single ; Rex Rubrorum and Yellow Tournesol, double. A collection of Gourds was shown by Mr. W. Young, of Highgate ; also a group of six Dracænas. Mrs. B. Hooke, of Fulham, sent four varieties of Cyclamen persicum ; and from Mr. E. Robinson, gardener to Richard Benyon, Esq., of Reading, came the most interesting feature in the show—eleven plants of the Otaheite Orange, 18 inches to 2 feet in height, and from 12 to 18 inches in width, nice bushy plants, with very healthy foliage, and the fruit finely coloured. There were 111 fruit on the plants, one of them having fifteen on it. They were excellent specimens of Orange tree cultivation.

Mr. W. Earley, of Digswell, had a collection of vegetables, containing Paul's Crimson Beet, a very deep-coloured kind ; Musselburgh Leeks, Green Top Stone Turnip, excellent Student Parsnips, ditto White Spanish Onions, early White Penzance Broccoli, Elford Rhubarb, an old but high-coloured sort ; James's Carrots, Jerusalem Artichokes, Digswell Prize Hardy Endive, a good stock of Green Curled, Prickly Spinach, Scorzonera, Salsafy, &c. Also six dishes of Apples of the following kinds : Golden Reinette, Dredge's Fame, an excellent keeper ; fine Cockle and Sturmer Pippin, Fearn's Pippin, and Hertfordshire Codlin. These had been kept in very dry silver sand. A small collection of vegetables also came from Mr. Beasley, gardener to Mr. Wood, Acton, in which was some very good Sea-kale.

The conservatory is now very gay and inviting with spring-flowering plants, among which Hyacinths, Tulips, and Narcissi play an important part. They have been arranged with great judgment and taste by Mr. Eyles.

R. D.

WELLINGTONIA GIGANTEA.

A FEW years ago much fault was found with this noble and very ornamental tree, on account of its being apt, while in a young state, to lose some of its branches by fungus, &c., and to have its young wood turn brown. Of late, few such complaints have been heard, but, on the other hand, statements as to its rapid progress in height and symmetry, its producing cones, &c., have been frequent. Have any of your readers seen perfect seed produced from cones saved in England, or indeed in any part of the United Kingdom ? We have trees here which have produced cones for several years, but in size not equal to that

which the late Mr. Veitch, of Exeter, gave me, and it was one that his collector sent home previous to our seeing or knowing what like the plant was. This season, however, we have cones of the natural size, and containing perfect seeds. Why is this? Because we have had, and shall have again, male catkins on those trees, and such catkins were not observed in previous years. It will certainly be interesting to know what others have observed in these matters.

Bicton.

JAMES BARNES.

NOTES MADE AT THE FLORAL AND FRUIT COMMITTEES.

At the meeting of February 20th, an extremely interesting show of Apples was an object of considerable interest. Though the season has been generally admitted to be one adverse to the keeping of Apples, it would not have been supposed to be true by any one who could have seen the splendid fruit shown. The fruits were large, plump, and fresh-looking, and seem as if they had been well and carefully preserved.

A first-class certificate was awarded to Messrs. Rivers & Son, of Sawbridge-worth, for a collection of American Apples, grown and ripened out of doors on Paradise stocks, and shown to evidence how very favourable to their proper development was the season just past. The varieties were large and nicely coloured. They were Boston Russet, Allen's Everlasting, Æsopus Spitzemberg, Baldwin, Calville St. Sauveur, Rhode Island Greening, Lady's Sweeting, Lodgemore Nonpareil, Newtown Pippin, Melon Apple, Rome Beauty, Calville Blanche, and Sturmer Pippin. The same award was made to Mr. S. Ford, gardener to W. E. Hubbard, Esq., Horsham, for a collection of Apples, Pears, Oranges, and Limes. Of the former there were excellent examples of Scarlet Nonpareil, Court-Pendu-Plat, very highly coloured; Adams' Pearmain, Blenheim Orange, remarkably good; Dutch Mignonne, Royal Pearmain, Elstead Pippin, Black Jack, Shepherd's Seedling, King of Pippins, Scarlet Pearmain, Norfolk Beefing, Holland Pippin; of Pears, Knight's Monarch, Easter Beurré, Uvedale's St. Germain, March Bergamot, Joséphine de Malines, and Bequêne Musqué. Also sweet Oranges, which were said to be used at table; and some fruit of the prolific Lime. The same award was also given to Mr. Lynn, gardener to Lord Boston, Hedsor, for a collection of Apples, comprising Scarlet Nonpareil, excellent Cockle Pippin, Wellington, French Crab, so yellow in colour, and large in size, as to create some discussion as to whether it had been correctly named; Scarlet Russet, Cox's Orange Pippin, Small's Nonpareil, fine Court-Pendu-Plat, Lemon Pippin, Herefordshire Pearmain, Sturmer Pippin, Bess Pool, Golden Russet, Lewis's Incomparable, and a very fine yellow sort, name unknown. Mr. Lynn also sent some Black Hamburgh Grapes, which had been hanging since September, to show its valuable keeping properties; and a trio of Hedsor Prolific Winter Cucumber, a medium-sized fruit of the Sion House strain, very prolific, and invaluable for house work.

From Mr. W. Hill, the Gardens, Keele Hall, Staffordshire, came very fine fruit of Citrons, to which a first-class certificate was awarded; and from the same exhibitor came a bunch of Lady Downe's Grape, also a bunch of Golden Lady Downe's, a medium-sized berry; no report was made as to its qualities.

To the department of the Floral Committee came from Mr. F. J. Graham, of Cranford, several large plants of the new Russian Violet Czar. The flowers are very large, of a purplish violet colour, and beautifully fragrant. A smaller variety, named Dagmar, was also produced, but was considered to be a good deal inferior to the foregoing.

Mr. W. Bull had three varieties of Camellias—Contessa Morella, white, slightly flaked with carmine; Venanzio, pale pinkish blush, suffused and flaked with rose; and Archiduc Carlo di Toscano, bright crimson, with pale rose centre, suffused with crimson, and flaked with white. From Messrs. Waterer and Godfrey came three plants of *Aucuba japonica vera*, one of them a very handsome variety, having very large clusters of bright red berries. From the gardens of the Society came various ornamental and flowering plants, among them was a *Cattleya*, sent home by Mr. Weir, and *Libonia floribunda*, a very handsome and free-flowering greenhouse shrub, which was awarded a first-class certificate.

At the usual scientific meeting afterwards (presided over by Lord Henry Lennox, M.P.), the Rev. J. Dix made some comments on a few of the subjects present; as also did Mr. G. F. Wilson in regard to some of the fruit. The Rev. M. J. Berkeley produced a small branch of *Wellingtonia gigantea*, with male catkins, which had been obtained at Orton Longville, near Peterborough, and said to be the only specimens that had ever been produced in this country. Mr. W. Wilson Saunders also gave a very interesting address on the cultivation, &c., of some Orchids he had brought with him.

R. D.

THE CULTIVATION OF THE MUSHROOM.

THE excellent article on the cultivation of the Mushroom by Mr. Saul (see page 22), is so much to the purpose, that I have some hesitation in sending a few observations on the growth of Mushrooms in a house built here. This Mushroom-house is heated with hot-water pipes, and the beds have slate sides and bottoms, with iron pillars to support them, thus doing away with all timber fittings, which constantly decay and favour the breeding of woodlice and other insects.

Mr. Saul's mode of preparing the horse-droppings is the best that can be adopted, for I find when droppings are thoroughly turned over daily in an open shed till dry, that beds can then be made with safety. His system of mixing loam with the droppings for large beds in sheds is likewise an excellent way of keeping such beds in a good bearing state, from the solidity and moisture so given them. When filling the beds here, after the droppings have been well turned over, and are dry enough, the beds are well trodden, or beaten very hard, and sometimes spawned on the same day. If any doubts are entertained as to the droppings not being fermented enough, or too wet, the holes are made and kept open, but the spawn is not inserted for a few days, till the heat is ascertained to be all right. The temperature of the house being kept at about an average of 60°, Mushrooms invariably appear in these beds in three or four weeks if the spawn be fresh and good. To make sure, I generally mix together the spawn from two or three different makers, when spawning the beds. The number of beds in the house here is twelve, and they are of large size, and the ease and certainty with which a large establishment can be daily supplied with Mushrooms is a proof that such houses are invaluable.

Another great advantage in having such a house is, that Sea-kale, Rhubarb, Endive, and Chicory can be easily forced in any quantities. I keep a lot of deep boxes with lids for the Sea-kale and Chicory, the roots being boxed in November, and covered with litter, so as to be always ready for bringing in during the most severe weather. The Endive is brought in from the protected borders as wanted, and planted in an open bed, where it blanches in a few days. I call this house the Russian-house, for it does duty for thawing frozen vegetables in hard winters, as well as furnishing all the above necessities.

In my opinion there is not a more useful structure in a garden than a good Mushroom-house, where a large establishment has to be supplied in the winter months, and where gardeners want to live on good terms with the cook. In general, back sheds, or stokeholes have to be used for such purposes, but the supplies can never be regulated so well as in houses built for the purpose, and properly heated.

Welbeck.

WILLIAM TILLERY.

ON THE CULTURE OF THE NEAPOLITAN VIOLET.

As winter flowers are so much sought after and esteemed, I venture to offer a few hints on the cultivation of the Neapolitan Violet, than which none is a greater favourite with the ladies; and with the exception, perhaps, of the Rose, none imparts a more delightful fragrance to the atmosphere of a room. It may be had in bloom from the first week in October to the last week in March, a period of six months; and if Roses be supplied during the other six, few other flowers will be required for cutting for the drawing-room or boudoir; indeed it is upon these two that I mainly rely to meet the demands for that purpose.

Writers in former Numbers of this periodical, have stated that the Neapolitan Violet may be grown in such places as turf pits, as recommended by Mr. Barnes, of Bickton; but it should be borne in mind that here, as well as at other places forty miles east of London, we are not favoured with a Devonshire climate. Even in the neighbourhood of Newbury, in Berkshire, where I lived eighteen years ago, I found it requisite to grow this plant in a brick pit heated by hot dung. In Violet-growing, as in everything else in gardening, unless the heart is in the work, failure will be the result, and instead of an abundance of flowers there will only be leaves.

My own mode of cultivation is as follows: About the first week in April I take the plants out of the pit, a common Melon pit, and cut the roots to pieces, avoiding any that are old and hard, as I prefer the young pieces that are rooted, for these make the best plants. I bed them out on a north border, in rows 15 inches apart, and the same distance from plant to plant in the row; this gives room for working the hoe between them, as well as for cutting off the runners as fast as they are produced, with the view of keeping the plants to one crown. It is necessary to use the hoe among them several times in the course of the summer, to keep the soil sweet and free from weeds; and should the weather become very dry, water must be given, either with a rose watering-pot, or from the syringe—I prefer the latter—about twice a-week during the hot weather, as the Violet delights in moisture. Abundance of bloom in December and January are the reward of careful summer treatment, especially in respect to watering.

For soil I prefer plenty of leaf mould, with the addition of a good proportion of road sand. I use about one barrowful of the latter to three of the former for growing them, both in the border and in the pit.

I will suppose that the summer's growth is completed, and that the plants are both large and full of flower-buds. About the first week in October, a pit is prepared as follows: Planks are laid crossways inside the pit, resting on the tops of the pigeon-holes, and on them is placed a single layer of faggots for drainage, and then just sufficient long dung to prevent the soil falling through. A depth of about 6 inches of soil will be found sufficient. The plants are then taken up, preserving a good ball to each, carried on a handbarrow to the pit, and planted in rows, in about 8 inches of soil, and with their tops about

8 inches from the glass. The distance apart must be regulated by the size of the plants; I generally allow about 1 foot between them each way.

After planting in the pit, should the soil become too wet from over-watering, it should be occasionally stirred with a small hoe, and any damp leaves picked off, as well as all the runners. I am aware that some gardeners do not take this trouble, but neither do they have much trouble in gathering the blooms. They get leaves in winter, and blooms in spring, when there are plenty in the hedgerows.

If the above directions be attended to, and fresh linings of hot dung placed round the pit or frame, so as to maintain a nice bottom heat, the glass covered with mats when necessary, and air given on all favourable occasions, plenty of beautiful double blooms will be ready to pick at any time during the winter months.

Elsenham Hall Gardens.

WILLIAM PLESTER.

A FEW REMARKS ON INSECTS.

THERE is nothing so destructive to a fruit garden as insects; nor is there anything in the business of gardening that requires more attention than obtaining an acquaintance with their character and habits, that we may be able to combat such enemies successfully. The subject is one of great importance, but gardeners will easily acquire from observation and books such a knowledge as will suffice for their profession.

In seasons favourable to them, the power which some insects, such as green fly, have of multiplying themselves, is almost incredible.

The Apple trees about London, and in some of the southern counties, suffered very much from insects last season. In Yorkshire, and other northern counties, the Apple trees escaped from caterpillars uninjured, and promise an abundant crop in the coming season; but during the early part of last summer thrips abounded, every flower, plant, shrub, and tree, being covered with them. On hot burning soils the red spider was also very numerous, attacking Strawberry plants in the open ground, and the Raspberry, Gooseberry, Peach, Apple &c. During the early part of September, aphides were unusually numerous for several days; they settled in masses on the Peach trees, which soon shed all their leaves. Fortunately, owing to the fine weather that had prevailed previously, the wood was pretty well matured, otherwise, the prospect of a crop this season would have been very doubtful.

I would strongly impress on fruit-growers the importance of watching carefully this season, and making an early attack upon every species of insect. As a precautionary measure, all the old shreds and ties should be removed from Peach trees, and the wood should all be well washed with a mixture of sulphur, soft soap, soot, and clay, mixed to the consistency of paint. If all the wall trees were painted it would be an advantage. Standard trees of all kinds will have been pretty well cleansed by the heavy rains we have had. Careful and unceasing attention in watching and destroying all insects on their first appearance is the best method of keeping them down. A few moments, in the early stage of insect life—at the first birth of the new colony—will do more to rid us for the season of that species than whole days of toil after the matter has been so long neglected that the enemy has become well established. Once left to multiply, the difficulty and labour of eradicating insects are considerably increased. The difference between destroying them at first and a fortnight afterwards, is frequently as between ten and ten thousand. A very little time and attention regularly devoted to the extermination of insects will

keep a large garden free from them. Constant attention and watchfulness in destroying insects on their first appearance, save a great deal of labour in the end.

The many insects that infest fruit trees may, for all practical purposes, be divided into four classes: 1st, Those which for a time harbour in the ground and may be attacked in the soil; 2nd, Winged and other species which may be attacked among the branches; 3rd, Aphides, or plant lice, which infest the young shoots; 4th, Moths, and all flying insects.

Insects, the larvæ or grubs of which harbour in the ground during a certain season, are all, more or less, affected by the application of common salt as a top-dressing. Salt is very disagreeable to nearly all this class of insects, but being a very powerful agent, it must be employed for this purpose with the greatest caution and judgment; if applied very frequently, or too plentifully, it will certainly cause the death of any tree.

It is astonishing what havoc caterpillars make of fruit trees if allowed to increase; in an incredibly short time a tree, or a whole orchard, as the case may be, is denuded of all its leaves, than which there is nothing so unsightly in a garden during the summer months, to say nothing of the loss of fruit. Watching well, and destroying them on their first appearance, is the best and wisest course that can be adopted; and, in default of other more rapid expedients, the old mode of hand-picking and crushing is the safest and surest that can be followed.

When caterpillars are very numerous, and hand-picking would occupy too much time, powdered white hellebore is a sure and quick means of destroying them. The mode of applying it is to dust it on them from a small dredger. One dose is, in general, sufficient; but as many of the caterpillars may be on the under side of the leaves at the time, and so may not get any, it is advisable to repeat the application after a few days; it is rarely that a third application is required. When caterpillars are very numerous on fruit trees, this is the surest and most speedy mode of destroying them.

Of the winged and other species which may be attacked among the branches, many small insects may be destroyed either by powerful odours, or by a strong decoction of tobacco. The great point is to do it in time; one or two syringings with tobacco water, and one or two fumigations with tobacco, will soon destroy a young colony; but if not taken in time, and allowed to increase, the difficulty of exterminating them effectually is very much greater.

Aphides, or plant lice, which infest the young shoots, are readily destroyed by fumigating with tobacco, and for clearing plants under glass it is the best and surest mode; but when fruit trees on walls and in the open ground are infested, the best mode to adopt is to syringe with tobacco water, which is an efficient remedy for aphides and many other insects that feed upon the young shoots and leaves of plants. The young shoots of Plum trees, Cherries, Peaches, Gooseberries, Currants, &c., are often infested with aphides in summer; the best plan for destroying these, is to dip the end of the shoots into tobacco water; it is rather a tedious plan, but for the black fly which attacks Cherry and Peach trees it is the best remedy. When the trees are syringed, the water does not reach all the insects so effectually as when the shoots are dipped into the water.

Moths, and all night-flying insects, are destroyed in large numbers by the following mode:—A flat saucer or vessel is set on the ground, and in it is placed a light, partially covered with a common bell-glass besmeared with oil. All the small moths are directly attracted by the light, fly towards it, and, in their attempts to get at the light, are either caught on the sides of the bell-glass, or fall into the basin of oil beneath, and in either case soon perish. If a

person walks about dusk on a fine summer's evening by the side of a wall of Apricot or Pear trees, he will see a number of little moths flying about; every one of them should then be destroyed, and there is no simpler means than the plan just described above.

It is impossible in one short article to mention the manner of destroying all the insects injurious to fruit trees; it is an inexhaustible subject, and one deserving the greatest attention from gardeners.

There can be no good gardening, nor any good fruit, where insects are allowed to get ahead, and to keep them down demands constant watchfulness, and promptitude in destroying them on their first appearance.

Stourton.

M. SAUL.

OUR CONTEMPORARIES.

THE parts of FLORE DES SERRES from November to February, contain the following plates:—

Eucodonopsis nagelioides, a hybrid between *Eucodonia Ehrenbergi* and *Nægelia zebrina splendens*. The flowers resemble those of a *Gloxinia*, and are of a rosy purple colour, veined with crimson; the throat lemon-coloured, dotted with crimson. The foliage is the same as that of the mother plant, the *Eucodonia*, as regards form and nervation, but is not lax.

Aucuba japonica.—The green-leaved plant, bearing its fine, shining, coral red berries.

Amaryllises.—Four plates of several unnamed seedlings raised in M. Van Houtte's establishment. The flowers are bright-coloured, and very showy, but not materially different from those of existing varieties.

Azalea indica punctulata, white, with flakes and broken streaks of rose and red. *Azalea punctulata variegata*, rose and red, with crimson spots, and edged with white. *Azalea punctulata omnicolor*, uniting on the same individual the flowers of the preceding two, with others entirely red with a brilliant crimson tinge in the upper petals. The first-named variety was raised by M. Van Driessche, of Ledeberg, and the second and third are sports from it, which are now said to be fixed, having come true for two years.

Odontoglossum Pescatorei.—An excellent plate of this beautiful Orchid, which first flowered in 1851, in the establishment of M. Linden, of Brussels, to which it was sent by Funck and Schlim, who found it in Oak forests in New Granada, at an elevation of 7500 to 8500 feet above the level of the sea.

Rose Madame Joséphine Guyet (Touvais).—A Bourbon of last year, with medium-sized, globular, bright red flowers, very brilliant in the centre. M. Van Houtte remarks that it has more than justified the description given by the raiser.

Clanthus Dampieri flore albo, rubro-marginata.—Another plate of Messrs. Henderson's new variety. *Lilium Thunbergianum aureum, nigro-maculatum*. A variety described as having flowers of a bright nankeen yellow, spotted with black. It grows about a foot high. The bulbs should be planted out of doors in autumn, lifted every two or three years, the young bulbs removed, and, when this has been done, immediately replanted.

Clematis Jackmanni and rubro-violacea, both of which were figured and described in our Volume for 1864.

Pardanthus chinensis.—A good representation of the *Ixia sinensis* of Linnæus, known also as *Moræa sinensis*.

Dendrobium formosum giganteum.—A magnificent variety of *D. formosum* with white flowers, having a blotch of deep orange at the base of the lip, and with flowers much larger than the common form of *D. formosum*.

Camellia planipetala, *Tea Rose Maréchal Niel*, and *Phalenopsis Lüddemania* form the subjects of three more illustrations. Of Messrs. Low's beautiful new *Phalenopsis* a full description, accompanied with an excellent coloured plate, appeared in our December Number.

Schizostylis coccinea.—A half-hardy member of the Iris family from Caffraria, and producing in the end of summer and in autumn long spikes of crimson flowers, which are uninjured by 3° or 4° of frost.

Gesnera (Nægelia) *Sceptre Cerise*.—Branching racemes of vermilion-coloured flowers, variously marked with yellow, and bronzy chestnut-coloured leaves, shaded with crimson. A group of beautiful *Peruvian Alströmerias*, imported, and probably also crossed, by M. Année, completes the list of illustrations in these parts.

The FLORAL MAGAZINE for January has for its first plate *Swainsonia magnifica*, a New Holland plant, with racemes of pretty bright pink, pea-like flowers. It is in the hands of Mr. Williams, of Holloway, who recommends it for planting against the pillars or trellis of a cool greenhouse, or for cultivation as a specimen plant. When the seeds are sown after having been kept any considerable time, they should previously be soaked slightly in warm water. For raising the seedlings, the heat of a stove or slight hotbed is requisite; and in potting off, the most suitable soil to use is equal parts of loam and fibrous peat, with a good proportion of silver sand.

The second plate has for its subject Messrs. E. G. Henderson's new variety of *Clanthus Dampieri*; and the third is a representation of three of Mr. Bull's *Italian Striped Verbenas*, of which the editor justly remarks, "that it is not likely that such flowers will be serviceable as bedding plants; for, as a rule, two-coloured flowers, even those where only the eye is of a different colour, do not succeed so well as those which are self-coloured, or nearly so;" but for exhibition, and in contrast with the self-coloured varieties, they will be found, he imagines, very useful. The varieties figured are *Beautiful*, white, blotched, flaked, and striped with purple; *Carnation*, white, flaked with deep crimson, and striped with rose; and *Fascination*, white, striped and blotched with dark crimson, and striped with violet-rose and carmine.

The fourth plate is a representation of *Primula cortusoides amœna alba*, one of the pretty varieties sent home from Japan by Mr. J. G. Veitch. The flowers are white, but, being somewhat pendulous, also display the magenta-coloured back of the petals.

In the February Number the first plate is a representation of the common *Aucuba* in fruit; the second, *Verbena Really Blue*, which it is believed will supply the long-felt want of a truly blue *Verbena* for bedding-purposes.

Chrysanthemums Iona and *John Salter* are the subjects of the third plate. The former is a beautiful golden-coloured flower; the latter a large finely-incurved orange flower, the "petals" backed with Indian red. *Calanthe Veitchii*, obtained by Mr. Dominy, from *Limatodes rosea* fertilised with *Calanthe vestita*, and now tolerably well known, is the subject of the fourth plate.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY. — The annual general meeting was held on the 13th of February, when his Grace the Duke of Buccleuch, the President, took the chair at 3 P.M. The usual formalities having been gone through, Mr. Robert Fortune and Mr. W. B. Booth were appointed scrutineers of

the ballot for the election of new members of Council and officers for the ensuing year. Whilst the ballot was being proceeded with, W. Wilson Saunders, Esq., the Secretary, read the report of the Council for the year 1865.

The following were the principal points

touched upon in the report:—The number of Fellows of the Society has increased during the past year, and the amount of their subscriptions in a still greater ratio, owing to their desire to avail themselves of the additional privileges attached to the four-guinea membership. Regret is then expressed at the loss which the Society has experienced by the decease of three men of such eminent horticultural attainments as Dr. Lindley, Sir William Hooker, and Sir Joseph Paxton; and the Council propose to secure the co-operation of Government, and of bodies pursuing branches of science collateral with horticulture, in obtaining a life-sized group. Satisfaction is expressed at the improvement in the receipts from exhibitions; and the result, it is believed, tends to show that small and frequent exhibitions are more conducive to horticultural progress, and less likely to cause pecuniary loss, than the large exhibitions of past years. The Council, therefore, consider that there should be only one great general exhibition, and that that should be held in the end of May or beginning of June. The number of entrances to the gardens at Kensington have shown a considerable increase during the last year, being 231,599, as against 185,092 in 1864, and 115,521 in 1863. These numbers are exclusive of the admissions on the anniversary of the Prince Consort's birthday, when, last year, more than 129,000 persons entered the gardens. The Council, in reference to the Fruit and Floral Committees, report that the meetings of these bodies have been numerous and well attended, that the subjects adjudicated on have been many and important, and that trials of bedding plants and Peas have been carried out by them. The Tuesday meetings are next referred to, and it is stated that they do not compare unworthily with the old Regent Street meetings, either in the beauty of the objects exhibited or the numbers present, and steps are to be taken to make them better known to the Fellows. The Saturday shows and promenades have proved very attractive, and the attendance at the gardens on those days has been greatly increased in consequence; the average number of visitors on the Saturdays during the month of May, 1865, being 2000, whilst in the preceding year, before the institution of the show and promenade, it was less than 400. The next point is that the produce of Chiswick has not yielded so great a return as was expected, owing to the failure of the Strawberry crop, and the general abundance of other fruits, and consequent low prices. The number of visitors to the Chiswick garden during the past year was 4675, of whom 1003 were Fellows. 1530 packets of fruit-tree cuttings and 376,884 packets of flower and vegetable seeds have been distributed among the Fellows, and 6265 plants by ballot. The progress made in the completion and decoration of the structures in the garden at

South Kensington is then adverted to; then the arrangements for the coming season, in which the Council have endeavoured to carry out the idea of uniting science and art. The Rev. M. J. Berkeley has been appointed botanical adviser to the Society, and with him have been united two practical horticulturists—Dr. Hogg and Mr. Moore, the one eminent in pomology, the other in floriculture, with the view of carrying to practical conclusions the ideas evolved by the experiments at Chiswick, through the labours of the Fruit and Floral Committees, and by the shows. The three gentlemen above-named are to supervise the operations, to conduct the experiments, and to watch on and report for the Society the Committee meetings and shows. Dr. Hogg and Mr. Moore are likewise to examine candidates for certificates and diplomas in theoretical and practical gardening, and to advise on the instruction of young gardeners at Chiswick. By these arrangements the Council hope to effect two important objects—first, to spread a knowledge of what is being done both by the Society and by horticulturists generally, so that a system may be worked out by which the field of labour may be partitioned among horticulturists, and experiments be suggested to them; secondly, to procure the instruction, either at Chiswick or by inducements held out to successful competitors at the examinations, of as many as possible of the rising generation of gardeners in those processes and methods which are likely to lead to successful results. In some such manner only can a sufficient number of facts be brought together for arriving at safe generalisations on the effects of particular modes of treatment on vegetable life. The remainder of the report has reference to arrangements for admission; to those with the Committee of Management of the International Exhibition and Botanical Congress; to the erection of a spacious hall, capable of holding 6000 persons, which it is in contemplation to erect on the vacant space between the conservatory and the Great Western Road; to Mr. Weir; and, lastly, to the special prizes offered by members, which are to be competed for on the 14th of June, and not on the occasion of the International, as erroneously stated in our last issue. A prize of ten guineas is also announced for the best essay on the growth of tropical fruits, a subject which is now engaging much attention.

After the report had been read the Chairman announced the result of the ballot—viz., that the Duke of Buccleuch had been elected President; G. F. Wilson, Esq., F.R.S., Treasurer; and Lieut.-Col. Scott, R.E., Secretary, for the ensuing year; that Viscount Sandon, the Right Hon. W. Cowper, M.P., and Sigismund Rucker, Esq., had been elected new members of Council, in the room of J. J. Blandy, Esq., J. Kelk, Esq., M.P., and Major Trevor Clarke, the retiring members in con-

formity with the charter; G. F. Wilson, Esq., Lieut.-Col. Scott, and Henry Cole, Esq., C.B., Expenses Committeemen; and J. Nicholson, Jonathan Clarke, and R. Hudson, Esqs., Auditors.

The adoption of the report was then moved by Sir A. Scott Waugh, who expressed his satisfaction with it, with the improvements effected in the gardens, and with the extension of the privileges of the members; and the regret which he, in common with other Fellows of the Society, felt at the loss of three such eminent men as Dr. Lindley, Sir William Hooker, and Sir Joseph Paxton. He observed with satisfaction that part of the report in which the Council expressed their intention of carrying out horticultural experiments.

Some questions were then put by Mr. Neville Grenville relative to the admission of Fellows during the International Exhibition, and it having been explained by Mr. Cole and the Chairman that the Fellows would have free admission to that exhibition on the second day, and at all times, except when the arrangement and judging of the plants and fruits was going on, to those portions of it in the Society's grounds, Mr. Grenville expressed himself satisfied. The motion for the adoption of the report being seconded by Mr. Blenkins, was then put to the meeting and carried unanimously.

The valuation of the Society's stock by Messrs. Lee and Parker, was next reported to be—Kensington, £3783 11s. 6d.; Chiswick, £2202 15s.—or altogether £5986 6s. 6d.

Some discussion afterwards took place as to the propriety of the threepenny admissions during those months when the Fellows are, for the most part, out of town. Colonel Challoner considered that such a rate of admission lowered the Society in the eyes of the public, and suggested that it would be better to throw the garden open free on certain days. Mr. Edgar Bowring said that as the estate, which the Society held on most advantageous terms, formed part of that purchased with the proceeds of the Exhibition of 1851, it was in one sense public property; and that therefore the general public should have some privilege in respect to it, either by facilities for admission at certain times, or by having free days. For himself he was rather inclined to think the latter course preferable. Several Fellows having expressed their opinions on this subject, and a motion that Monday should be a free day during August and September having been made and withdrawn, it was ultimately agreed that the best course would be to leave the matter to the Council to decide upon. Some questions having been put as to the privileges of the Fellows, and the Chairman having promised that if there was any obscurity as to these it should be made clear, the meeting closed with the customary vote of thanks.

One fact worth recording as indicative of

the increasing prosperity of the Society is, that at the meeting held on the 20th, no less than thirty new members were elected; and now that the Council have shown their anxiety to do all in their power to extend the Society's sphere of usefulness, there can be little doubt that it will meet with a yet greater share of encouragement.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.—Owing to Dr. Seemann's having to proceed on a mission to Central America, he has been under the necessity of resigning the Secretaryship of the Congress, and Dr. Masters has been appointed to that office.

LONGEVITY OF TREES.—The Washington Elm, at Cambridge, is supposed to be upwards of 140 years old, because it is known that the celebrated Whitfield preached under its shade in the year 1744. The Aspinwall Elm, at Brookline, is known from historical data to be two hundred years old. The great Elm on Boston Common is believed to be of about the same age. Now, of these trees, the first measures 14 feet in girth, at 4 feet from the ground; the second measures 17 feet, at 5 feet from the ground; and the third, 16½ feet, at the same height. There is a remarkable Lime tree at Neustadt, Wurtemberg, which was so noted in the 13th century as to be called "The Great Linden." An old poem, dated 1408, mentions that "before the gate of the city of Neustadt, rises a Linden, whose branches are sustained by sixty-seven columns." These columns were pillars of stone, set up to support the immense branches, one of which extended horizontally more than 100 feet. Its age is computed at about 820 years. The celebrated Tortworth Chestnut is probably the oldest and largest tree in England. In the reign of Stephen, which began 1135, it was remarkable for its size. It is now 55 feet in girth, at 5 feet from the ground, and is doubtless 1000 years old. One of the oldest Oaks in England is the Parliament Oak, in Clifstone Park, so called from a Parliament held under it by Edward I., in 1290. Who has not heard of the immense Oak near Cozes, in France, 90 feet in circumference at the ground, out of whose hollow centre a room 10 feet in diameter and 9 feet high has been cut out? It is put down at 1500 years from the acorn. The Olive tree attains a great age. One, lately cut down in the suburbs of Nice, Italy, showed nearly 1000 years.—(*American Horticulturist*.)

REMARKABLE FIG TREES.—In a recent Number of the "Journal of Horticulture" Mr. Dawson gives an account of some remarkable Fig trees at St. John's, near Ryde, Isle of Wight. The property, until lately, belonged to the Simeon family, and the gardener was Mr. John Lawrence, of whose decease and long and faithful service a notice appeared in our volume for 1865. Last autumn the ground was sold for building-purposes, and there is therefore every probability that the trees will

be cut down. There are twenty-six or twenty-eight of them, half of which are growing on a trellis over a walk, the remainder are on walls. The largest two were originally trained against a wall, but had for many years been allowed to grow at freedom, and almost without pruning. The stem of the larger of the two, before dividing, measures $4\frac{1}{2}$ feet in circumference; and its three branches 2 feet 2 inches, 1 foot 9 inches, and 2 feet round. The other tree has three stems, respectively 2 feet 6 inches, 3 feet, and 3 feet 4 inches in circumference. They always produced abundant crops.

KEW GARDENS.—According to the annual report, the total number of visitors to these gardens during the past year has been 529,241; 260,040 on Sundays, and 269,201 on week days. Among alterations and improvements are the conversion of the old Victoria-house into a house to be devoted to the display of a selection of economic plants; and the whole of the collection of Palms in the Palm-house, as well as the succulents, have been repotted. The acquisition to the herbarium of Dr. Lindley's collection of Orchids consisting of 3000 specimens, and of Dr. Burchell's South African and South American herbarium is also announced.

PROPAGATING GERANIUMS.—According to a French horticultural serial, M. Lierval practises the following mode of propagation: On a shelf immediately over the hot-water pipes, and which can be maintained at from 50° to 55° , is placed a bed of moss about 2 inches in thickness, and over this about a third of an inch of very light soil. About the beginning of February the store plants are started to furnish cuttings, and as soon as the buds have pushed a little they are taken off with a small piece of the shoot, and placed on the bed on the shelf, just putting them a little way into the soil to give them a hold. The soil is then kept constantly moist, and in five or six days roots are emitted. The cuttings are then potted in small pots, placed close to the glass on a hotbed; repotted as soon as they have filled their pots with roots, and replaced on the hotbed.

OBITUARY.

DR. PETER LENNÉ, Director of the Royal Gardens, Potsdam, one of the best of the German landscape gardeners, died there on

the 23rd of January, aged 76. The Royal gardens, and the public walks and gardens of Berlin, were indebted to his skill for much of their beauty.

MR. JOSHUA MAJOR.—We find in the "Journal of Horticulture" the following tribute to Mr. Joshua Major, the well-known landscape gardener, of Knowsthorpe, near Leeds. The deceased gentleman held a prominent position in his profession, and was the author of several valuable works. In 1829 he published a work entitled, "A Treatise on Insects Most Prevalent on Fruit Trees;" in 1852, "The Theory and Practice of Landscape Gardening," an important work, which met with high and deserved encomiums from the public press; and in 1861, with the assistance of his son, who succeeds him, "The Ladies' Assistant in the Formation of their Flower Gardens," a work designed expressly to meet the prevailing taste for the bedding-out or grouping style. He was also a frequent contributor to the "Gardener's Magazine," under the conductorship of that eminent man, Mr. J. C. Loudon, who highly appreciated his plans and papers on landscape gardening and other subjects. He delighted in works of philanthropy. He assisted in the formation of the first Sunday school in Leeds, of which he was superintendent for many years; and all religious and charitable institutions he took great interest in and actively promoted. His personal qualities were of a high order. He was of a cheerful disposition, simple in his tastes and habits, and impressed all who had the good fortune to know him as being a thoroughly kind-hearted and estimable man. He was highly appreciated by his workmen; and as an evidence of this, six of them served him fifty, forty-two, forty, thirty-two, twenty-nine, and twenty years respectively. After upwards of half a century devoted to his profession with an ardour and perseverance rarely equalled, he died on the 26th of January, at the advanced age of 79 years.

MR. ROBERT OSBORN.—It is with much regret that we have to record the decease of this gentleman, so long the senior partner of the well-known firm of Osborn & Sons, of the Fulham Nurseries, which took place on Friday, the 23rd of February. He was in his 84th year, and was highly respected by all with whom he came in contact during his long career.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Stove.—Allow the heat to increase gradually; admit air freely in favourable weather. Plants which have bloomed should be allowed to become dry, and be removed to a cooler house. Plants which begin to show signs of

growth should be repotted if necessary. At tend to previous directions respecting insects. **Orchids.**—As the principal part of these will now be growing, and as light and solar heat are daily increasing, the temperature may safely be raised a few degrees on bright days.

To many kinds shading will soon be necessary, and such should be got in readiness for using directly the plants show indications of suffering from excess of light. Attend to previous directions respecting potting or re-dressing, which should always precede the new growth. Many kinds, however, will from time to time require examining and the addition of fresh material. Do not permit water to lodge about the newly-formed roots, or rot they assuredly will. Increase the humidity of the house as the days lengthen. Remove plants in bloom to a drier house, to preserve them from spotting. Night temperature 60°, rising 10° or 15° by day.

GREENHOUSE.

If a mixed collection of plants is grown, remove the softwooded kinds to one end of the house, as they will require to be kept a little warmer than hardwooded sorts. Where separate houses can be afforded each, their management will be more easy. The cultivator must bear in mind that the successful growth of plants depends very much on a good start; and as the generality of greenhouse plants will now be commencing to grow, an abundance of both light and air is in the highest degree necessary to ensure a slow, steady, and progressive action. Not only must plants be kept as near the glass as circumstances permit, but the glass itself must be kept clean, and everything connected with the inside of the house in the same state. We said above a slight difference should be made in the management of hard and softwooded plants, but with both nothing like hurrying should be attempted; a short-jointed sturdy habit can only be obtained by the means above pointed out, combined with patience. Many things will now require repotting, and supposing a supply of peat, loam, and well rotted dried cow or other manure, is at hand, it may take place as opportunity offers; speaking in general terms, fibrous peat and silver sand are the principal ingredients for hardwooded plants, using more or less of loam, &c., for free-growing kinds. As some plants require pruning back at this season, allow them to form a new growth before shifting them. Let every attention be paid in potting to thorough drainage, as much of the after-success depends on this. Camellias are now in their greatest beauty, and will require rather more water than usual—manure water occasionally. As plants of these and Chinese Azaleas go out of bloom, place them in a cool house to recruit their energies, and to enable them to break strongly. Sow Mignonette for succession. Tuberoses should now be potted in light rich soil, in 32-sized pots, and when the plants are up a few inches repot them. Sow Balsams, Cockscombs, and other tender annuals for summer display. *Cinerarias*.—Late-struck plants should now be put into their blooming pots; these will succeed those now coming into bloom. Green fly will give some trouble this month; fumigate on their

first appearance, or the mischief will be done. Seedlings will now be fast coming into bloom. All will help to make the greenhouse gay; but in selecting those to be saved for another season compare them with the best already out. *Pelargoniums*.—March is an important month with this plant. Fumigating must be particularly attended to; as the plants begin to grow, aphides will make their appearance, and these must be kept under. Watering, too, at this season, requires more than ordinary care and judgment. As but little water is given during the dull winter months, the balls of earth become dry and hard towards the bottom of the soil; and as the general stock is started into growth at this season, care should be taken that, when watering, the water shall penetrate through the ball of earth. Training the plants into handsome shapes, as they progress, should be attended to, tying out the side shoots, and arranging them generally according to the instructions given on several previous occasions. If the foliage has become at all dusty, use the syringe freely until it is clean. Use weak liquid manure when the pots have become full of roots; give plenty of room, light, and air. Fancy varieties require much the same treatment as the other kinds; the warmest end of the house should be allotted to them.

CONSERVATORY.

This will now be at the height of its beauty by the addition to the ordinary stock of plants, of forced Rhododendrons, Azaleas, Roses, and other hardy shrubs, bulbs, &c. Allow nothing to detract from the interest attaching to select showy plants in the shape of faded or withered blooms, or negligence of any kind: a moderate temperature, say 48° or 50° by night, increasing 8° or 10° by day, should be maintained. Let the necessary watering be done early in the morning, that the house may become dry and enjoyable by the forenoon. Many of the best white Camellias will be soiled if exposed to damp. Water plants growing in the open border when dry.

PITS AND FRAMES.

Look over the stock of bedding plants, selecting such varieties as will require to be increased; remove them to a warmer temperature, where they will soon push young shoots, which will strike freely. Plants not required for propagation should be hardened off without delay. Keep them well stopped back, to form bushy plants by the time they are required for planting out. See to the coverings nightly, as the weather at this season being uncertain, one night's neglect may possibly cause much unnecessary trouble. Fumigate occasionally, and look well after mildew. Annuals required for bedding-purposes should now be sown. Peas should be sown in pots for turning out in May.

FORCING.

Vines in bloom require a dry temperature,

accompanied by a little extra heat, in order to enable them to set well and form handsome bunches. 65° will be a good average temperature, but Muscats require 70° to do them justice; stop the shoots at one joint above the bunch, leaving a leader. If the Vines have been cut back shorter than the rafter, tie down the shoots neatly, and thin the berries which are likely to swell, as soon as possible after they can be seen. Keep the air of the houses humid, by syringing the walls and damping the heating apparatus, when the Grapes are swelling and the Vines breaking. When the weather is mild, give air freely, using more caution when cold or frosty, so as to avoid exposing the foliage to chilling currents of air. *Peaches*.—In the early Peach-house, disbud when the fruit is set, taking off a few of the extra buds at a time to prevent giving the trees a check; leave the shoots intended to form the wood for next year's crop regularly over the tree. After the fruit is set, the syringe should be again put in use on fine mornings, to keep the foliage clean and healthy; and the air of the house may be kept moister than when the trees were in bloom. Water the inside borders of vineries and other forcing-houses. *Strawberries* in bloom must be kept fully exposed to light; those swelling may be removed to more heat, to finish them off; supply with liquid manure, and keep down green fly by tobacco. *Melons* should now be ridged out on a nice sweet bottom heat. Let the loam be free from dung, and moderately strong. Keep a top heat of 70° or thereabouts. When the plants have started, pinch out the ends of the shoots, when they will produce laterals, the strongest of which should be selected to fill the frame. Do not permit them to produce fruit till they have a good stock of leaves. Sow for succession. *Cucumbers* should receive the same treatment as Melons, only they require a lighter soil. A moist heat is necessary for both in their early stages. Assist those in bearing by manure water and top-dressings, and maintain a steady bottom heat of 85° . *Pines* showing fruit, keep dry. Like most other things, a dry atmosphere causes their bloom to open more freely, and results in regular-shaped fruit; water them when they are dry at the root, and keep the bottom and top heat steady; from 80° to 95° for the former, and from 60° to 80° for the latter, with air at all opportunities. The young plants will now require shifting into larger pots; use, for growing them, half rotten turfy loam, to which may be added a little soot or well decomposed manure. If the loam is tolerably rich, this will not be necessary; plunge in a brisk bottom heat, and keep rather close till they begin to grow; afterwards, air and light in abundance. Keep on sowing Dwarf Kidney Beans. A pit planted with the above now will produce a valuable crop in April and May. Continue making Mushroom-beds according

to the supply expected. Afford air freely, to give colour and flavour to Asparagus forcing in frames.

KITCHEN GARDEN.

With the advance of spring, the number of things requiring to be done in this department daily increases. If our previous directions for trenching and working the land have been attended to, it will now be in good order for sowing Parsnips, Onions, and a few Carrots; the principal crops of the two former should be got in without delay. Carrots in dry soils are apt to become maggoty in hot weather if sown too soon. Dwarf Mammoth and Champion Peas may now be sown, to be succeeded by the taller Marrowfats towards the end of the month; the Long-pod and Green Windsor Beans should likewise be planted to succeed the Fan and Mazagans. Plant out, as time permits, the early and principal crops of Potatoes. Avoid the use of fresh, rank manures; but where manure is necessary, let it be well decomposed, and add dry ashes, guano, or soot as auxiliaries; lime, in moderation, on some soils produces Potatoes of excellent quality. Towards the middle of the month transplant from the frames Cauliflowers, Lettuces, &c., to warm borders; give the autumn-planted crops a good hoeing, or if the soil is very firm, slightly dig it over with a fork. Fresh plantations of Rhubarb, Horseradish, Sea-kale, and Artichokes may now be planted; as the above are to remain in the same place for some years, let the ground be deeply trenched and well enriched with manure. Spring-sown vegetables in frames should have the sashes taken off on mild days, to gradually harden them for pricking out. Autumn-planted Cabbages, encourage by well soaking, in mild weather, with liquid manure, and keeping the soil about them well loosened. To have Leeks in perfection, sow them on a slight bottom heat, and treat them like Celery.

FRUIT GARDEN.

Hardy Fruit—The pruning and nailing of fruit trees should now be brought to a close without delay. In our last Number we recommended materials to be applied by way of keeping the trees from blooming till as late a period as possible; coverings must, however, be removed when the flowers open, as full exposure will then be necessary each day, replacing them at night. The above supposes canvas or netting of some kind to be used; but as the spray of evergreen trees is sometimes employed as a substitute, a portion must be removed so as to admit light and air to the blooms, adding more at night, should the severity of the weather demand it. Break down with the garden fork, the ground rough dug among fruit bushes, and give as tidy an appearance to the ground as possible.

FLOWER GARDEN.

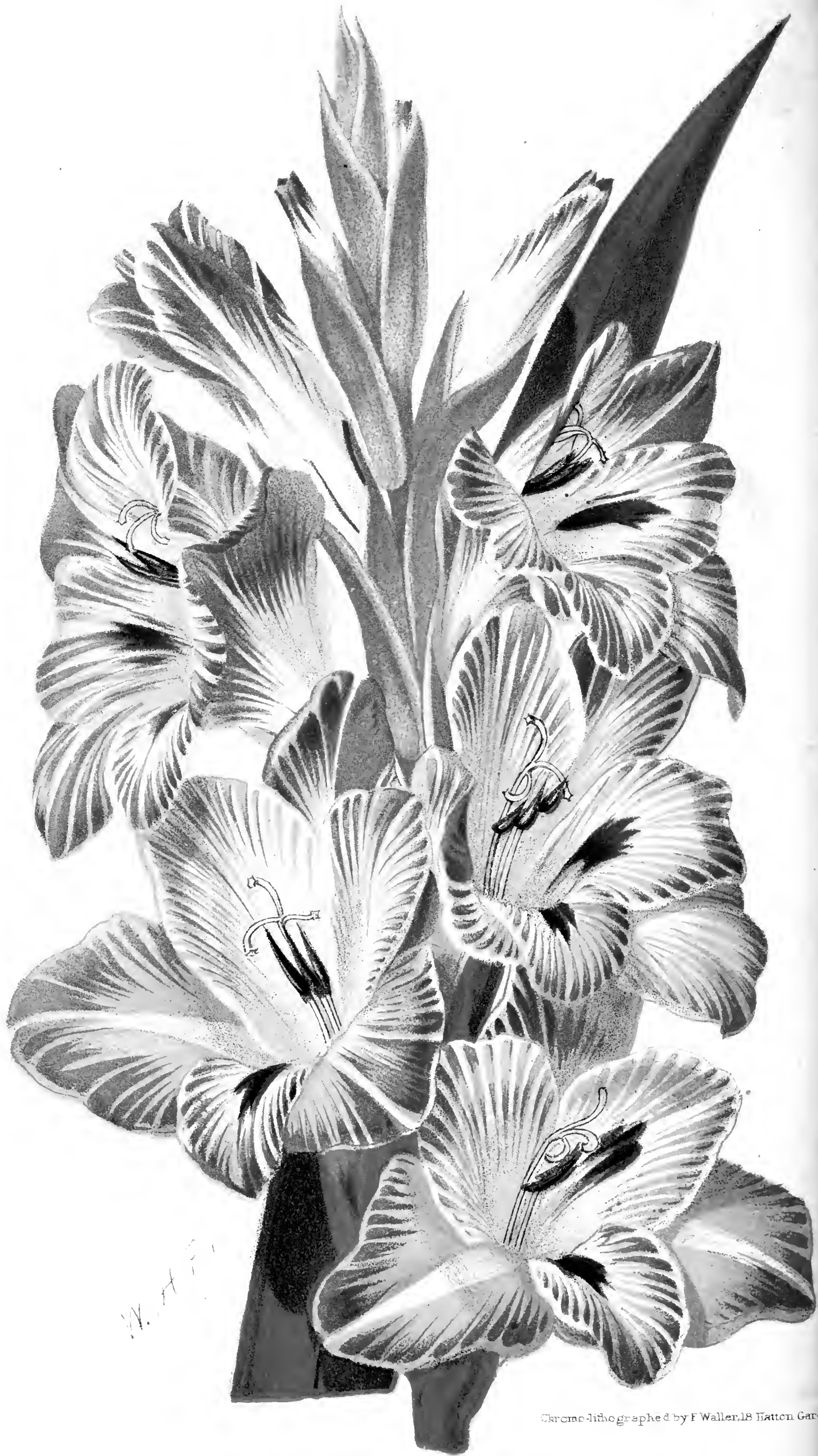
Digging and dressing flower-beds and

borders for summer flowers should be at once proceeded with. Prepare compost required for bedding plants; replant and divide all kinds of herbaceous plants as early in the month as possible. *Tigridias*, *Gladiolus*, &c., should be planted towards the end of the month. Gravel walks should be swept and rolled frequently in fine weather. Level down, and rake over ground which has been forked up during winter, to give as neat an appearance as possible to this department. Roses may be planted even up to the end of the month; and although we have done this successfully as late as the first week in May, when the weather continued open, we cannot recommend planting being delayed a day longer than is necessary. We would advise that only the wood which is to be entirely removed be cut out at present; leave shortening the shoots (always to an outer bud) till all chance of severe frost is quite over. The directions given last month respecting pot Roses apply equally well to this.

FLORISTS' FLOWERS.

Auriculas.—These will require more moisture now that they are throwing up their trusses of bloom, but give plenty of air. Cover carefully during frosty nights; being in a growing state, they are much more likely to be injured in March by frost than at any previous time. If some of the varieties appear to be throwing up their bloom too early for exhibition, remove such to a shady northern aspect; this will afford a better head of bloom at any given time. Clean the glass if it has become dirty from covering up during winter. *Carnations and Picotees*.—The soil having been prepared, frosted, well-turned, and kept dry, and the pots having been washed, potting for bloom may be proceeded with, commencing with strong-growing varieties, such as will stand a little bad weather, which we must yet expect to experience. Two, three, and sometimes four plants are put into an 11-inch pot—we prefer three—and a pair of plants in eight-inch pots. In potting, press the soil firmly with the hand. Plants of upright-growing kinds require securing at the time of potting, with neat small deal sticks, or the chances are they will suffer before the time arrives for permanently staking them. As long as the plants remain in small pots, in pits or frames, look closely to watering them: their pots being full of roots, they soon dry, and will suffer considerably from the March winds if this is not attended to. Those who have a large stock, which takes a considerable time to pot or plant out for blooming, would do well to remove their plants to a northern aspect, reversing the frames, and plunging the pots, however temporarily, in ashes. By remaining in a warm, southerly aspect at this season, the plants are prematurely started into growth, and their bloom much weakened. *Dahlias*.—During this month propagating the *Dahlia*

will be at its height, being the best time for the general stock. New or scarce kinds may be continued to be increased for a considerable time later. The reason we prefer plants from cuttings taken in this month is, that being in good time, they do not require forcing to make them forward enough, and are not too early to become stunted. Towards the end of the month start pot-roots in gentle heat, moistening them once a-day. As soon as the shoots have pushed from half an inch to an inch pot them into four-inch pots, using rich soil; draining the pots with a little coarse leaf mould, instead of broken pots. The tuber should be covered with soil, and care should be taken not to fill the pots with earth above an inch from the rim, as the tubers increase in size so rapidly that it is difficult to water them unless this has been attended to—the water runs away instead of into the soil. Those who can afford room for potting off their seedlings into single pots when up, may sow seed this month; if not, it had better be deferred till April. A strong moist heat is best for raising it. *Fuchsias*.—The first-struck young plants should now be pushed along, repotting them into five or six-inch pots, using light rich soil. *Fuchsias*, as grown generally, are too thin of shoots, and too tall; close-growing and short-jointed varieties do well as pyramids, grown with a single stem. Coarser-growing kinds should be stopped once, tying the laterals, when long enough, to form a compact bush; grown in this manner, they will be found much more effective. *Hollyhocks*.—Harden the plants well this month preparatory to planting them out in April. Plants struck during winter, or this spring, should have a good shift, and be planted out about a fortnight after the first batch. Seedlings may be planted out in the end of the month, but should be secured from slugs or snails. *Pansies*.—Those in pots should be allowed to have gentle, mild showers; the frames should be kept open as much as possible. Peg out the shoots as the plants progress; small side shoots may be put in as cuttings. Any stock left in pots should be turned out into beds. If a few plants are planted in a shaded border it prolongs the bloom, by keeping them in colour during the month of June. Seedlings wintered in pans should be planted out. Sow autumn-saved seed. *Pinks*.—Top-dress the beds with a mixture of half-rotten manure and half good rich soil, choosing a day when the beds are tolerably dry on the surface. If any plants have been loosened by frost, press them firmly into the soil before they are top-dressed. *Tulips*.—Generally these will now be above ground, and will require care in protecting them during frosts, cutting winds, or hail; on all other occasions keep them open. Mats, stout canvas, or what is better than either, frigi-domo, makes a good covering during winter, or at night during the spring months.



Chromo-lithographed by F. Waller, 18 Hatten Garden

OUR LITTLE LUCY.—CLADIOLUS.

GLADIOLUS OUR LITTLE LUCY.

WITH AN ILLUSTRATION.

THIS is one of the beautiful varieties of *Gladiolus* which have been raised by Mr. Standish, of Ascot. It is due to the successful efforts of Mr. Standish to state that he has contributed very largely to the improvement manifested among these showy popular flowers. He has, indeed, as respects the status of English-raised varieties, placed them quite on an equality with those of continental origin, and what M. Souchet's *Gladioli* are amongst those raised in France, Mr. Standish's novelties are amongst those of English parentage. Indeed, we question if some of his flowers—that named John Standish, for example, now unfortunately lost to cultivators—have ever been equalled in those characteristics which mark high quality in the flowers.

The variety we now figure, by a process which scarcely does it justice, has already won a position for itself in the ranks of floriculture. It was shown at a meeting of the Floral Committee on the 27th of September, 1864, and on that occasion won a first-class certificate. In the report of the meeting referred to, it is spoken of in the following terms:—"A very fine and novel variety, of a rosy magenta colour, striped and splashed with white; the lip segments feathered with purple. It will be quite an acquisition among these showy autumn flowers." This brief description we endorse.

So much has lately been written respecting the diseases and culture of *Gladioli*, both in our own pages and those of our contemporaries, that we need not enlarge on these points. We would, however, refer inquiring readers to several communications relating to the choice of varieties, which have recently appeared in the pages of the *Gardeners' Chronicle*, and we quite concur in the remark made by one of the writers referred to—himself a well-known grower and exhibitor—namely, that a great and manifest advance has of late years been made in the varieties submitted to the approval of the public.

M.

THE CHINESE PRIMULA.

I MAY supplement to what I stated last month under this heading, that at the meeting of the Floral Committee at South Kensington on the 20th ult., a group of flowers was produced by Messrs. Windebank & Kingsbury, of Southampton. One thing was very apparent—that with depth of colour in the double flowers, there was also combined great strength of constitution, judging from the robustness and vigour of the plants. I note this fact, because in the previous paper I hazarded a doubt as to whether such was the case.

I find, also, that Messrs. Windebank & Kingsbury have not as yet succeeded in producing double flowers from the Fern-leaved varieties. When preparing the previous paper, I laboured under the impression that they had done so. That they are on the high road to this desired end there can be no doubt, as they have already semi-double flowers that are highly promising. At this meeting, however, there was produced from the garden of W. S. Roots, Esq., of Kingston-on-Thames, a double variety of *P. filicifolia*, the flowers of which were a light pinkish rose, quite double, but the petals were edged with white, which detracted from its effectiveness. However, it denotes that double varieties of the Fern-leaved plants are to be obtained. Not only is it true of the plants of *P. filicifolia*, that the colour of the leafstalks affords no clue to the colour of the flowers, but it is also characteristic of the strain of the older kind in the hands of Messrs. Windebank & Kingsbury.

A description of some of the varieties shown at South Kensington on the occasion referred to will no doubt be acceptable. The Fern-leaved varieties were represented by—

P. filicifolia rubra.—Very deep purplish crimson; flowers very large, bold, and stout, well fimbriated; foliage stout and strong. Very fine.

P. filicifolia kermesina.—A very fine form; of the *Primula kermesina* colour, and of greater depth and richness than is usually seen. Stiff and vigorous habit.

P. filicifolia alba.—Large bold flowers; pure white, changing to delicate flesh with age; centre lemon, with brownish orange ring. Very free bloomer, and good habit.

Of their old strain there was—

P. striata lilacina.—Light flowers, suffused and slightly flaked with lilac. This is a very pretty flower; the blooms were large, and the foliage stout and strong.

Of double varieties there were the following:—

Purity.—Pure white; large and very double flowers. Remarkably free bloomer; habit good. A fine variety.

Rubra.—Good double flowers of a deep lilac rose. Very free; and of good habit.

Delicata.—Pale blush flowers; large and very double. Strong and vigorous habit.

Magnifica.—Rosy pink. Large and very double flowers, and good habit.

Quo.

A FEW WORDS ON THE APPLE.

THE Apple is one of the most widely diffused and valuable of fruit trees, and it would be idle to enumerate the many uses of its fruit—a fruit which may be enjoyed by rich and poor, and from January to December. Although by some it has been neglected in favour of more showy and luscious fruits, yet the number of those who justly appreciate its value is very great; but owing to the multitude of varieties which now exist, they find it very difficult to make a judicious selection. As, however, experience must count for something, I trust that the result of my observations on about sixty varieties will not be unacceptable to the readers of the FLORIST AND POMOLOGIST.

As the season for grafting is approaching, those who have old or worthless sorts, and from various reasons cannot get a supply of young trees, should now be on the look-out to secure grafts of the best of the newer varieties. I have found the following exceedingly good and useful, and such as must please the most fastidious—viz. :—

DESSERT.

1. Early Harvest.
2. Cox's Orange Pippin.
3. American Mother Apple.
4. Fearn's Pippin.
5. Ribston Pippin.
6. Cockle Pippin.
7. Scarlet Nonpareil.
8. Sturmer Pippin.
9. Wyken Pippin.
10. Claygate Pearmain.
11. Golden Russet.
12. Boston Russet.

KITCHEN.

13. Lord Suffield.
- *14. Cellini Pippin.
15. Cox's Pomona.
- *16. Golden Noble.
17. Kentish Fillbasket.
18. Mère de Ménage.
19. Hoary Morning.
- *20. Waltham Abbey Seedling.
21. Yorkshire Greening.
22. Beauty of Kent.
- *23. Dumelow's Seedling.
- *24. Royal Russet.

The above sorts are well worth growing. More especially can I speak of those numbered 1, 2, 3, 8, 9, 15, 16, 20, as being much superior to most of the

older kinds. I should state that those marked with an asterisk are sometimes used for the table, though more properly adapted for the kitchen.

In providing for a supply of the newer sorts for the future, I do not find it advisable to cut down all the old trees in one year, thus destroying the present supply; but by introducing fresh kinds gradually the crop is not materially diminished.

Apples, I may observe, were very abundant in the south; and I think they coloured better than they have done for some years. They ripened very quickly, and I think this induced some of us to gather them too soon, for they have not kept so well generally as in former years when they have hung longer.

Crabwood, near Southampton.

J. C. HIGGS.

ROSES—THE MANETTI STOCK.

I AM never desirous of obtruding my observations on Roses, or on any other commodity; but, as I am in a great measure responsible for the Manetti stock, or rather for Roses on it, I will ask leave to stand up once more in its defence. I may say, I believe with truth, that there is no private individual in England who has had such long and extensive experience of Roses on the Manetti as I have had. The more I know of it, the more I like it. Nurserymen propagate Roses on this stock, and sell out annually; and they cannot propagate it sufficiently to meet the yearly increasing demand for Roses on this stock. Few of them, I believe, have any "continued experience" of Roses on this stock; but I can speak of it from continued experience as an admirable stock, whether you view it *per se*, or as an easy and certain introduction of Roses on their own roots. I have given away this year between seven and eight hundred Roses, chiefly on the Manetti stock, most of which have been here in my home, dry, chalky soil for eight or ten years—some for a longer period. I bought some of these of Mr. Davis, of Newbury, and of Mr. Gill, of Blandford, many years ago. They went through the terrible winter of 1860 unscathed. The Briar Hybrid Perpetuals, almost to a totality, died out, or died afterwards. Of the summer Briar Roses, I lost hardly any.

As "A. D.," in the last Number of the *FLORIST AND POMOLOGIST*, solicits information, I beg to subscribe this. I have read his article attentively. I cannot conceal from myself that he has wrongly treated Roses on this stock. He has given the reasons of his failure. I must observe that the last summer was quite an exceptional one; the earth was as hot as a fryingpan—in fact, without abundance of water, nothing could live. That was supplied here; and I never had a more prolonged and glorious Rose season—from the 14th of May to the frosts of winter, six months. I ask, in passing, what other flower will do that?

"A. D." speaks of his land being a yellow loam, 2 feet deep. I suppose it is either clay or sandy loam; in either case, he had no business to fail with Manetti Roses, or Briar Roses. I have no such soil. My home garden, with a west aspect, is chalky, shallow, dry, and resting on a dense chalk, that reaches probably to New Zealand. My north-east garden, on the other side of the valley—where I have about 1200 Roses, chiefly on Manetti, some of which have been transferred from my home garden, and some of which have been there from all ages up to ten years—is rich, friable, blackish soil, but shallow, and resting on a gravel substratum, so hard that you could not move it without a pickaxe. Indeed, as Manetti Roses require to be covered over the point of union, and as the soil is so shallow, I am obliged to put a covering of black dung over the gravel, then a little earth, and then the radius of the Manetti

roots. The plant is then tied to a stick, and the trench, a sort of Celery trench, is filled up alternately with earth and decayed manure (sometimes boxes are used), and each layer is trodden hard against the stock, from which all apparent eyes have been cut. I rarely have any trouble with them afterwards. Now and then the stock of a fresh-planted Rose will throw up a "pirate," hardly ever from the roots. These pirates are insidious fellows, but any man accustomed to Roses will see them in a moment. The leaves are smaller than Rose leaves generally are, and of a dense green, and the shoot is usually reddish at the base.

Having had so many Roses on this stock for so many years, I can hardly think that I could have remained so long under a delusion. I find round here that the Briar Roses are at a discount. My brother has given them up. His land is sandy. I have bought 150 Manetti Roses for him. Last year I bought upwards of one hundred Manetti Roses for Mr. Sturt, at Critchell. They gave great satisfaction. Mr. Adolphus Kent, when staying here, saw them in bloom; and praised them. This year I was asked to buy one hundred more. I saw them a few days ago, and both lots looked well. The land is fine deep loam. Mr. Beck, the new gardener, recommended by Mr. Veitch, has nicely protected their roots with straw, which is an excellent "frigi domo." I may say, in passing, that Mr. Beck is making great improvements.

I will now advert to "A. D's." article. In that article he gives you two very good reasons why his Roses failed—excessive drought, and mis-pruning.

With regard to drought; it is impossible to grow Roses continuously through a season (six months), on their own roots, or on any stock, without an adequate quantity of manure, and a most abundant supply of water. It cannot be too hot for Roses, provided these two are adequately supplied. It is a forcing-house out of doors, with the benefit of air. So far from Manetti Roses not liking heat, I plant my pot Roses on banks like those on which hedges are planted, but I mulch deeply with dung, covered with burnt field ashes (retainers of moisture), and pour abundance of water into the centre of the bank. These pot plants have been removed to my other garden, to await removal next autumn; and the banks are levelled for culinary vegetables. They are noble trees, 5 and 6 feet high, and can be seen any day—such as Duc de Cazes, Prince Camille de Rohan, Maurice Bernardin, and Duc de Rohan, four noble Roses; abundant, and never-ceasing bloomers. I bought them of Mr. W. Paul some years ago. He would be a convert, if he were to see them.

With regard to pruning Manetti Roses, "A. D." is wrong again. Never prune any Rose, on any stock, at the time of planting. Till the eyes swell, you cannot tell the best place to put the knife. Never at any time cut Manetti Roses hard, unless the wood is spoiled. If it is succulent, wait till the eyes swell, and cut to a good eye. Briar Roses will not bloom from succulent wood; but Manetti Roses will bloom abundantly from pithy wood. Briar Roses fail much, especially fresh-planted ones, from not being cut hard enough; Manetti Roses sometimes fail from being cut too hard when fresh planted. Had "A. D." let the succulent wood alone, in due time it would have become hard. If the colour of the skin is yellowish after the Rose is established, I should cut it away in due time. That yellow skin is the effect of injury to the lungs of the plant; it is a sort of jaundice. From first to last, treat them as though they were established Hybrid Chinas.

I am afraid "A. D." will be disheartened, for he is wrong again! He talks of suitability of soil. The Manetti stock is suitable to all soils—clay, sand, chalk, gravel—yes, gravel, if you put in plenty of manure. It will grow also in swampy ground. I have just sent to my new residence twelve plants of Reine d'Angleterre, about 6 feet high, whose roots in winter are in the water.

They were Mr. Cranston's gift nine or ten years ago. Noble trees! they ceased not blooming all last summer. The land I am going to is deep and strong. In such land, I shall probably have to root-prune every year. That will be the only difference between my management in light and strong land.

I can now only say in defence of Manetti Roses, and in justification of my observations, that there are nearly 1200 Manetti Roses, and Briar Roses, and Roses on their own roots, in my north-east garden, to speak for themselves. I shall be gone, but they will speak for themselves. They are the pick of England; and they are in the highest condition, and are pruned. Visit them between the 12th and 20th of June, and they shall present to you a condensation of vivid and varied lustre—lots of yellows in lines—that shall make your eyes sparkle with delight. It is often rash to speak beforehand, but then "the best prophecy for the future, is the history of the past."

Tarrant Rushton.

W. F. RADCLYFFE.

YOUR correspondent "A. D.," in last month's FLORIST AND POMOLOGIST, wishes the opinion of cultivators as to the merits of the Manetti stock. No doubt the Manetti is very serviceable to those who require to propagate Roses in large quantities; but as a stock for permanent use, I have a great dislike to it, and never plant Roses worked on it, except the new ones, which, as dwarfs, I cannot obtain in any other form.

I have for several years noticed that if any of the plants in my beds of dwarf Roses (which consist entirely of those on the Manetti, and those on their own roots), die, they are sure to be those on the Manetti. Another evil is the tendency they have to throw up suckers, which is at all times a nuisance, but especially when the pegged-down system is adopted. I would rather give three times the price for Roses on their own roots, than for those on the Manetti, even were they not nearly the size of the latter.

I would suggest that "A. D." should, in the month of May, give his Rose-beds a thorough mulching with stable manure, immediately after the ground has received a good soaking either from rain or watering. He will find his Roses prefer this plan to continual waterings, which in hot weather often do more harm than good. I would also suggest, that instead of pegging the shoots down in February, he should defer the operation until the buds on the upper portion of the shoots have started into growth—say about the last week of March, or early in April; as by pegging down so early, one advantage of the method is lost—viz., that of prolonging the blooming season. I feel sure he will be well pleased with both the quality of the Roses, and the effect the plants will produce, when grown on this system.

The Cedars, Castle Bromwich.

CHARLES JAS. PERRY.

NEW ROSES

A SMALL group of these, consisting of four varieties, was produced by Mr. William Paul at the meeting of the Floral Committee on the 20th ult. They were objects of considerable interest, not only as new varieties, but as showing the fine quality of the flowers that can be obtained from forced plants. The varieties were:—Elizabeth Vigneron, H.P., large and full rosy pink flowers, of fine outline, the habit apparently very vigorous, and blooming freely; Glory of Waltham, H.P., bright crimson flowers, large and full, and very attractive, judging from its habit, will make a capital pillar Rose. These two have already been sent out.

The others were:—Black Prince, H.P., rich dark crimson flowers, shaded with black, cupped, large and full—it promises to be a free bloomer, and has a vigorous habit; and Dr. Lindley, H.P., a fitting flower to be named after so distinguished a horticulturist. The blooms are of a rich crimson, with dark centres, full, and of great substance. The habit is robust, and the plant appears to possess a thorough hardiness of constitution. The flowers are Mr. Paul's own seedlings, and will no doubt take the front rank in the great array of varieties in cultivation.

R. D.

THE NEW HYACINTHS.

THE "new class" produced at South Kensington on the 15th inst. some of the best flowers that have been seen for the last three or four years. As usual the competition was restricted to three persons, and they the competitors who always and only appear. It cannot be a "paying game" to import new Hyacinths for exhibition, though indirectly it is not altogether unprofitable to vendors of Hyacinths, yet one is surprised to see a so-called "amateur" taking part in the competition. This will always be a restricted class as at present constituted, and I think that it only has a professional interest, as it is a fact that the aggregate of the flowers in the new class are inferior to those in the principal stand of eighteen varieties.

In looking over the stands, I found the Judges had disqualified one flower on the ground that it was "out of date." I suppose that by this somewhat ambiguous phrase was meant that it was not a "new variety" as it was said to be, having previously been exhibited, or else been in commerce. When I have asked for a definition of the term "new Hyacinth," I have been told that it is undefinable, and must be left to the Judges. Well, I will suppose that the Judges at the recent show were thoroughly qualified men (though practically the judgment of the new class was accomplished by one man); how is it that a flower which appears in a leading bulb list at 2s. each, and quoted in continental bulb lists for several years past, and which has been grown by the writer previous to this season, is not disqualified as being "out of date," and therefore out of competition as a new variety? The answer is simply this, It cannot be helped; such a circumstance will occur as long as so much uncertainty prevails concerning this class, and what the term "new" is really meant to convey.

At the recent exhibition Mr. W. Paul was placed first, with the following new kinds:—

Vunæbaak.—Single red. Very bright deep rosy crimson, with a light edging to each segment of the bells; spike large and close; bells good size, though the segments were somewhat long and pointed. A very striking flower, and altogether a good acquisition.

Sir E. Landseer.—Single red. Pale pink, suffused with carmine. A bright-looking flower, somewhat novel in colour; good spike.

Sir H. Havelock.—Single red. A first-class acquisition to the lilac or mauve section. Colour, plum purple, with dark stripes up the segments of the bells; it also has a rich gloss, and when well reflexed presents a very handsome appearance; good bells. Very novel, and extra fine.

Princess Mary of Cambridge.—Single blue. Very pale blue, with azure blue stripes up each segment; large bells well reflexed, and forming an enormous spike. An extra fine flower.

Adelina Patti.—Single red. Pale mauve, with a deeper shade on the edges of the petals; good spike.

Bird of Paradise.—Single yellow. Pale yellow, but deepening in colour

with age; large bells, forming a close and fine spike. A good addition to the yellows.

Messrs. W. Cutbush & Son, of Highgate, were second with—

Mrs. James Cutbush.—Single white. A magnificent flower in the way of Snowball, but much superior to it. Colour, pure waxy white; bells very large, and of fine substance; spike very large. This is evidently a flower of a much stronger constitution than Snowball.

Grand Vainqueur.—Single red. Pale blush, with a flake of carmine along each segment of the bell; good spike. Foliage very long.

Hogarth.—Single red. Pale ground colour, with heavy carmine stripes, and the segments edged with the same colour. Very novel and promising.

Auricula's Oog.—Single blue. Deep violet blue, with conspicuous white eye. Novel and attractive; small spike, but very promising.

Orion.—Single blue. Colour darker than the foregoing, which it much resembles at first sight, also having a glossy plum-coloured hue suffused over the violet purple of the flower; bells large and well formed. Novel and fine.

Arnold's Princen.—Single red. One of the mauve-coloured varieties, having a pleasing tint, but the spike small as shown.

Third, Mr. W. Young, gardener to R. Barclay, Esq., West Hill House, Highgate, with—

Mary.—Single white. A good variety in the way of Queen of the Netherlands, but the bells not so large, or the petals so long as the last-named; bells pure waxy white, and very stout; close spike.

Annie Lisle.—Single red. A bright red flower, by no means new, but very showy; medium spike.

La Gaieté.—Single red. Pale blush, with bright carmine stripes, and with an indifferent spike. Disqualified by the Judges as being "out of date."

Omphale.—Single white. Pale blush; large bells; petals long and very pointed. Very indifferent as shown.

General Pelissier.—Single blue. A pale flower, of the colour of Grand Lilas; the bells smaller than the last-named. Foliage short and stiff, and spike good.

Sir E. Landseer.—Single red. Mauve, with a dark stripe up each segment of the bells; good close spike.

It is due to Mr. W. Paul's wonderful group of twenty-four varieties, which was awarded the first prize, that a tribute should be borne here to their incomparable quality. Steadily but surely has he won his way to the highest position that can be obtained in a season. It may be anticipated that the "tug of war" will be desperate in the spring of 1867, as Mr. Cutbush will no doubt do his very utmost to dislodge his successful rival from the "citadel of success."

Quo.

ON THE CULTURE OF THE GENUS AMARYLLIS.

"OF all the genera of hothouse bulbs that are cultivated in our gardens, none can vie with the beautiful genus Amaryllis, of which there are now numerous species, and also a great number of hybrid or mule productions in our collections, some one or other of which are producing their splendid flowers all the year through." So wrote Mr. Robert Sweet forty years ago. There are few who will deny the justice of Mr. Sweet's remarks. Some of the best hybrids are very beautiful; and their utility for conservatory and in-door embellishment is such as to give them a very high place among decorative plants. They are very easily cultivated, and by a little management a succession of bloom may be had all the year through. A very large quantity of bulbs

is not necessary for this purpose, if attention be paid to their period of rest and of growth, resting only a portion of the bulbs at one time.

The great art in cultivating these, and all other bulbs, is to procure healthy vigorous leaves, as on these depends the quantity of nutritive matter prepared and deposited in the bulb, and consequently its ability to flower in the following season. Bulbous roots increase in size, and proceed in acquiring power to produce blossoms, only during the periods in which they have leaves, and in which such leaves are exposed to light; and these organs always operate most efficiently when they are young, and have just attained their full growth. The number and size of the flowers will depend on the organised matter stored up in the bulb, which is a magazine that contains all the nutritive matter collected from the leaves.

During the period of rest, which should average about three months of the year, the bulbs should be kept quite dry. They should be kept in the pots, not shaken out as they formerly used to be, on a dry shelf in the stove. That portion of the bulbs rested during the months of August, September, and October, should be started into growth in November; that portion rested during October, November, and December, should be started in January; and that portion of bulbs rested during November, December, and January, should be started in February or March. With a little care and attention a succession of these beautiful flowers will by this means be secured during the whole of the winter, spring, and early part of summer.

To start the bulbs into growth, all that is required is merely to place them near the light, in a little higher temperature than that in which they have been kept, and to give them a good watering. After this, they should have no more water until the scapes and leaves begin to grow, when they will require regular attention in watering. If the bulbs contain abundance of nutritive matter, they will only require a little heat and water, with exposure to light, to produce their flowers.

As soon as the flowers are fully expanded, the plants should be removed to the conservatory, or drawing-room, if required for that purpose. If, however, seed be wanted, the plants should not be removed from the stove, where a night temperature of from 55° to 60° should be maintained. They will then ripen seed freely, if artificial fecundation has been attended to, either by means of their own pollen, or with that of some other species or variety. After they have done flowering, they should be potted, if they require a larger pot, no matter what may be the time of year, as the leaves are then in healthy action.

The most suitable soil is a good yellow loam, with a little coarse sand mixed with it. In potting, the greatest care must be taken not to break the roots or injure the ball; a little of the loose soil on the surface should only be removed. When potted, they should have a good watering; they should then be placed in a good heat, be fully exposed to the light, and be carefully watered when necessary. Every attention must be given them as long as the leaves are in a healthy active state; a good heat, abundance of light, air in mild weather, and water when necessary, are the chief things required.

When the leaves naturally show symptoms of ripeness or decay, water must be gradually withheld; and when they are completely decayed, the pots should be placed in some dry, moderately warm, situation—on a back shelf in the coolest part of the stove, or in any place where the bulbs and roots are not liable to suffer from damp.

They are increased by offsets from the flowering bulb. These may be taken off at any time, and potted into small pots, then plunged in a hotbed-frame near the glass; they should have air at all favourable opportunities, and be properly watered. As soon as the pots begin to be filled with roots, a shift

should be given into a larger size, and again plunge them in a hotbed-frame. Under this treatment the plants will soon make flowering bulbs.

Seeds of the *Amaryllis*, as well as of most other bulbs, should be sown as soon as ripe. They should be sown in pans or pots, and plunged in a hotbed. When the young plants are sufficiently high, they should be potted off, either singly in small pots, or several in large pots. They ought to be again plunged in a hotbed, and be attended to as regards watering and air. As soon as their pots are filled with roots, shift them into larger ones, giving them three or four shifts in the course of the season; they will then grow rapidly, and many of them will flower at twelve months old. After that, they should have the same treatment as flowering bulbs.

The late Mr. Mayes, of the Bristol Nurseries, who had been a pupil of Sweet, was an enthusiastic grower, and a very successful hybridiser of the *Amaryllis* family, he having raised some of our best hybrids.

The following list includes some of the best varieties in cultivation:—

<i>aulica platypetala</i>	<i>imperialis</i>	<i>marginata</i>	Prince of Orange
<i>Ackermani</i>	<i>Johnsoni</i>	<i>conspicua</i>	<i>pulcherrima</i>
<i>pulcherrima</i>	<i>striata</i>	<i>venusta</i>	<i>radiata</i>
<i>Ariadne</i>	<i>superba</i>	<i>mirabilis</i>	<i>reticulata</i>
<i>Bellissime</i>	<i>Jerdoni</i>	<i>Miranda</i>	<i>refulgens</i>
<i>brasiliensis</i>	<i>insignis</i>	<i>Novelty</i>	<i>sanguinea</i>
<i>Cardinal</i>	<i>intermixta</i>	<i>obscura</i>	<i>spectabilis</i>
<i>Cleopatra</i>	<i>angusta</i>	<i>optima</i>	<i>Sweetii</i>
<i>delicata</i>	<i>lineata</i>	<i>picta</i>	<i>vittata</i>
<i>Diomeda</i>	<i>magnifica</i>	<i>Princesse de Ligne</i>	<i>pallida</i>
<i>elegans</i>	<i>majestica</i>	<i>psittacina</i>	<i>superba</i>
<i>ignescens</i>			
<i>Stourton.</i>			M. SAUL.

REMARKS ON FRUIT TREE CULTURE.—No. 8.

THE tendency to vertical growth, on which I remarked in my last, has led to the adoption of various modes of training fruit trees against walls, many of which are especially designed for the purpose of counteracting that tendency, so as to induce a fruitful habit of growth, and for the avoidance of too much manipulation with the knife. Several of these modes which were adopted in other days were simply ridiculous, because complicated, and in some cases almost impossible to be carried out in anything like a reasonable time; but the point started from, and on which all the operations were based, was that which we are accustomed to call the horizontal mode, which consisted of a central stem growing upright, from which the branches were all trained at right angles. This, to a certain extent, has sometimes been attended with a successful result for a time; but as the operators never went to the root of the matter, by cutting off the supply through the roots, they could not in time prevent the tendency to produce vigorous and unfruitful wood, particularly towards the centre, thereby often inducing premature decay in the fruit-bearing horizontal branches; and therefore no advantage whatever was gained over the much more natural and symmetrical mode of training all the branches from one common centre, or, in other words, that which is usually called fan training.

I consider that all distorted and unnatural modes of training are more or less dangerous according as they approach nearer to, or diverge farther from, the natural tendency of growth; and besides, we can put so many restrictions on growth, that there is, in fact, no need to resort to distorted modes of training. The mode of training out trees in the shape of a fan embraces all the advantages which are required from any system of training, and is applicable to all fruit trees, except perhaps Pears, which, from their extreme vigour

and mode of growth, are certainly much more manageable under the horizontal mode than any other, provided root-pruning is properly attended to. All stone fruits, however, ought most certainly to be trained on the fan system, if the proper care and attention can be bestowed upon them to prevent them from running into a vigorous woody growth. Where, however, time and labour are short, I will not say but that a greater degree of neatness may be attained, with less trouble, by the horizontal mode than the fan; but even this is only true of Plums, since Apricots, Peaches, and Cherries are very much better under any circumstances when trained fan-shape.

The Peach being one of the earliest trees requiring attention, and also one to which the fan system of training is peculiarly applicable, I will now endeavour to give a plain and practical detail of the method to be followed out in order to secure a healthy and fruitful development of growth coupled with a symmetrical shape. Thus, supposing a young tree to have been planted at the proper season, and also to have been specially selected, or previously prepared, with a view to equalising the growth of the shoots so that none shall predominate in strength, it ought to possess eight shoots, each of about the same length and strength, and this will form a very good foundation to start from. There will be no need to head them back closely, as is too commonly necessary when trees are planted late; but they may be left at about 18 inches in length, rather more or less, according to the size and strength of the wood, and then trained out equally in radiating lines from the centre, taking care, however, to leave the centre well open.

The height of the wall will form a very good criterion whereby to determine if it will be best to plant dwarfs or standards. If the wall is low, say 8 or 9 feet, then dwarf trees only ought to be planted; but if of the height of 12 or 14 feet, then the width between the dwarfs may be increased, and standards planted in the centre between each two; and the training of these may partake of the star shape—that is, the lowest branches may be trained downwards. These trees should have at least ten good shoots to start with; the lowest, however, should be shortened to about a foot, and the highest to 18 inches or so.

Previously to training-in, the shoots should be dressed over, whilst in a dormant state, with a solution of Gishurst compound, to which may be added some clay and flowers of sulphur to give it a thick consistence, as I think that the great benefit to be derived from this kind of dressings consists in their being thick enough to smother and plaster up both eggs and insects. This will be found a great preventive of both mildew and red spider, two very destructive enemies to a healthy development. It would be as well also if the trees could have the advantage of some kind of temporary protection to ward off the evil effects caused by the cold temperature so often prevalent in early spring, which is too often the cause of blistered leaves—an evil so destructive to the early growth, and so permanently injurious in its effects, that every care should be exercised to counteract it. The importance of attention to this point will become more apparent, when we consider that the formation both of healthy sound wood and fruit-buds depends upon the perfect development of the leaves; anything, therefore, which interferes with their development must be regarded as destructive. I believe, myself, that this particular injury is caused by the rupture of the vessels through the action of a low temperature, when the leaves are in a very young and tender state, the injury, however, not being sufficient to kill. The vitality of the leaves is sufficient to attract the sap when it begins to flow freely, but as they cannot make the proper use of it, the result is that abnormal condition commonly called curl or blister; and, therefore, because these injured leaves cannot perform their functions, the operator is often obliged to cut such shoots back, for the chance of a fresh bud breaking; or else to

depend mainly on the second growth for furnishing the tree, which under any circumstances can never be so good as the first growth is when well developed.

Redleaf.

JOHN COX.

ROYAL HORTICULTURAL SOCIETY.

THE Saturday shows are becoming quite an institution in their way, and are very interesting indeed. Small, but charming groups of flowering plants are produced on the last day of each week; and as winter is now fast changing to spring, the groups become larger and more diversified. Spring-flowering bulbs have been the principal things exhibited, and among them were the following varieties of *Crocus*:—Lord Wellington, deep violet, edged with white; small, but very pretty. Albion, a fine, dark, striped variety. La Majesteuse, dark-striped; large, and very fine. Madame Mina, a very beautiful pale violet, striped; very free-blooming. Comtesse de Morny, striped, but so faintly as to be scarcely distinguishable. Parnassus, another pale-striped flower, with a depth of colour between the two foregoing, but not so free-blooming. Grand Conquerant, pure white, edged with citron; a novel and pretty flower, and very free-blooming. Mathilde, small, pure white. Golden Yellow, deep yellow. Rhea Sylvia, a medium-sized pale-striped flower; very pretty. Commandant, dull pale violet; too dull to be attractive. Duke of Cumberland, deep lilac, with stripes of purple, and tipped with white. Sir Walter Scott, a fine striped variety, darker than La Majesteuse. Alexandrine, lilac and violet ground colour, feathered and tipped with white; very novel and pretty. Elfrida, a small light-striped variety, but remarkably free.

Of *Polyanthus Narcissus*, the following have been exhibited:—Gloriosa, large pure white, with orange cup, rough on the edges, fine; one of the best. Soleil d'Or, yellow, with orange cups; showy. Grand Primo, pale lemon, with gold cup; and also the white variety of Grand Primo, with bright yellow cup; large and fine. The white variety of Grand Monarque and Grootvoorst, which are the same as the last-named. Garibaldi, same as Gloriosa. States General, white, with golden cup; and a very pale sulphur variety, with yellow cup, under the same name, but very poor. Miss Nightingale, white, with orange cup; small as shown. Bazelman Major, large, white, with deep gold cup; one of the very best; differing from the white Grand Primo only in the deeper colour of the cup. Sulphurea, lemon, with golden cup; also small. Lord Canning, very similar to the foregoing, flowers rather larger, and colour of the cup deeper. Bridal Bouquet, sulphur, with gold cup; not so good as Soleil d'Or, which it somewhat resembles. Bathurst, pure white, with bright orange cup; very good and showy. Sir Isaac Newton, pale yellow, with deep golden cup; more showy than the majority of flowers of this ground colour.

A few Tulips have also been produced; but a more extended notice of these general spring favourites shall be given in due course.

R. D.

THE PITH OF TREES.

SINCE my last observations in these pages on the pith of trees I have given further attention to the subject, and am somewhat surprised that so little is known respecting the use of the pith, especially when so much has been said and written upon the theory of vegetation. I wish also to remark, that if those who write on botany and natural history could avoid, as far as possible, the use of scientific terms, perhaps their writings would be more popular, be-

cause better understood. What has made those of White of Selborne, and of the late Mr. Waterton so much relished but their simplicity? Neither of them used words such as Hydrocharidaceæ, and Caryophyllaceæ. Perhaps such hard words have prevented many from entering upon otherwise so interesting studies. However, I know of no one who has tried to explain the use of the pith of plants, therefore what I have stated, and now state, is entirely from my own observations.

In the early part of last season I split down two Elder shoots of the previous year's growth, exposed the pith in one, and scooped it out of the other; both produced offshoots equally strong. I have the same also to observe concerning a third shoot, from which I removed the pith with a piece of wire; but still more remarkable, I found the same results in green or tender shoots of Elder, on which I operated in the same way; with these, however, I had to pinch off their tender tops in order to get out the pith. Now, in my opinion, the marrow or pith in such is a store of food or juice to nourish plants before their proper sap vessels are formed. I should notice that buds have embryos of pith, and that, even when there is no connection between them and that of the original in the hearts of trees and branches, except by the sap elaborated from the leaves of the young shoots. Therefore, the juices of plants nourish or produce pith as blood does marrow in bones; but it is only found in large ones, small bones are supplied with the fatty matter through their pores. I should state that the hearts of some plants are hollow; still there are traces of pith in them, especially at the joints, and their buds abound with it. Perhaps the pith is absorbed with age, as marrow is to some extent in the bones of birds. Bishop Stanley, when speaking of the bones of geese, says that the marrow "does not entirely disappear till about the end of the fifth or sixth month." Canes and such plants may have pith between the sap vessels in their hearts, which nourish them during their growth or age. This reminds me of having seen coloured liquor put into fresh-bored holes in the pith or heartwood of trees, in the hope of its flowing with the sap and thus staining the wood; but the operation was undertaken in opposition to the fact that the flow of juices is only in the acting sap vessels between the outer wood and inner bark, and those were not only severed in the act of boring, but the corks which kept in the liquid deprived it of any chance of entering them. However, some of the wood was a little stained both below and above the holes; but had no connection with the flow of the sap, the stains being merely like those of rust from a nail in an oak plank.

Cossey Park.

J. WIGHTON.

BEDDING PELARGONIUMS.

HAVING given in our last volume the results of the trial of bedding Pelargoniums at Chiswick in 1864, as embodied in the valuable report of Mr. Moore, in the "Proceedings of the Royal Horticultural Society," we now extract from the same publication the conclusions arrived at in the past year, not only as regards the varieties previously experimented with, but those tried for the first time.

The varieties which had been approved in previous seasons were grown in small circular beds, each filled with one kind, so as to show their appearance when planted in masses. The result may be taken as a general guide to the fitness of the respective varieties for bedding-purposes in the climate of London, in soil such as that which occurs at Chiswick, and in a hot and sultry summer like that of 1865.

Of the plain-leaved varieties with scarlet flowers, the following, which had received marks indicating the highest degree of merit, were confirmed in the position which had been previously accorded to them—namely, Eleanor, Faust, Punch, Trentham Scarlet; and Red Dragon, a variety with very deep scarlet flowers, remarkable for their rich velvety surface, obtained the same number of marks. A grade lower was placed Achilles, and it was confirmed in that position.

Of cerise or rosy-scarlet plain-leaved sorts Lady Middleton was confirmed in the highest place; and Viceroy in the second rank.

Of rose-pinks with plain leaves, Christine and Rose Queen were adjudged to still hold the first rank.

The zonate-leaved series with scarlet flowers yielded the following, still adjudged to be of the first rank:—Adonis, Attraction, Clipper, Garibaldi (North), Martin Gireau, Victor Emmanuel, Vivid, and Volcano. A grade lower were placed Comet, Commissioner, Cottage Maid, Emperor of the French, Harry Hieover, Persian, and Rev. Joshua Dix.

The zonate-leaved rosy-scarlet or cerise-flowered series afforded of first-class sorts the following:—Hector, Herald of Spring, Mons. Martin, Roi d'Italie, and Umpire. To this list of first-class sorts was added Provost. Those of the next grade of merit were Bonnie Dundee, Cecilia, Comte de Morny, Effective, François Chardine, Giralda, and Pink Pearl.

In the zonate group, with salmon or flesh-coloured flowers St. Fiacre was confirmed in its position; while to the same category were added Fanty and Rosamond; Souvenir du 8 Juin being very much like this last. A second position in this series was still given to Prince of Hesse.

In the zonate group with white flowers, no sort was found to be superior to Madame Vaucher. One called White Perfection, which was highly approved last year, was not grown this season.

Of the zonate occulate series, those with white or whitish flowers and a salmon-coloured eye, the sorts preferred as of most merit were Eugénie Mezard and François Desbois. Some of the more recent varieties of this group, however, possessed much promise.

The zonate series, with rose-pink flowers, was represented among first-class sorts by Rose Rendatler and Eve; and amongst those of the second rank by Amy and Minnie. Some very fine varieties in this group were, however, discovered amongst the new sorts.

Of the marbled-leaved zonate sorts, the highest position was still held by Sheen Rival.

The Nosegay series, in so far as the older varieties were concerned, presented nothing superior to Cybister and Stella; while in the group which had received the second position, the only one which was again approved was Magenta.

The silver variegated-leaved series presented several sorts, to which the highest position was again accorded. In the group with zonate and white-margined leaves, there were:—Argus, Countess of Warwick, and Picturatum. Silver Chain was raised to the first class, and Julia was retained in the second class; while of those with white-margined leaves, not zonate, the highest position was allotted to Alma, Bijou, Jane, and Queen of Queens, Mrs. Lennox being raised to this rank; and of those with creamy-margined leaves Flower of Spring stood as a first-class sort. Venus was raised to the same rank, and Meteor was retained in the second rank.

The golden variegated-leaved series is less extensive than the silver. In the zonate and marginate group, the first rank was conferred again in the case of Mrs. Pollock and Sunset. In the marginate, not zonate, set, Cloth of Gold,

Golden Chain, and Golden Fleece, were severally confirmed as first-class sorts; and Golden Harkaway was kept in the second rank. In the group with the leaves wholly yellow General Longstreet was raised to the first rank.

Amongst the novelties very few decisions could be arrived at; but the following were sufficiently developed; the most approved sorts being indicated by an asterisk (*), and the next grade by an obelisk (†):—

Alexandra * (W. Paul).—A darkly zonate-leaved Hybrid Nosegay, of free habit, and effective in colour, having a deeper tint of rose than Amy Hogg. The flowers are crimson in the upper part, and deep magenta below, producing a pleasing play of colour.

Amy Hogg * (W. Paul).—A vigorous-growing Hybrid Nosegay, with slightly zonate-leaves, and very large trusses of flowers standing up above them, the flowers uniformly of a bright purplish rose colour.

Beaton's Indian Yellow * (W. Paul).—A free-growing Hybrid Nosegay, with zonate leaves, the flowers of a novel orange-scarlet tint, and having a glow of yellow when newly opened. A very effective variety.

Beauté des Surènes * (Salter, Lee).—A beautiful zoned-leaved sort, with large and finely-shaped rosy-pink flowers.

Beauty of Oulton * (Wills).—A very finely marked and effective variety, with leaves of a tolerably even roundish outline, and of a yellow-green colour, marked with a very distinct zone of rich chocolate brown. It was quite an acquisition.

Duchess * (W. Paul).—A free-flowering and dwarfish variety, producing large globular trusses of soft rosy-lake flowers of good form. It is one of the Hybrid Nosegay race.

Forester * (Carter & Co.).—A compact-habited and very telling sort, with green rounded leaves marked with a very dark broad zone, and rosy flowers of excellent shape.

Gaiety * (Wills).—A handsome-leaved sort with golden-tinted leaves marked with a bronze-coloured vandyked zone; flowers scarlet.

Glowworm * (W. Paul).—A Hybrid Nosegay of novel and pleasing character and compact habit, the upper part of the flowers being of a glowing scarlet, the lower magenta flushed with crimson, the trusses erect and abundant.

Golden Queen † (Wills).—Dwarf habit, with golden leaves.

Little Treasure * (Saltmarsh).—Of very dwarf habit, with small zonate leaves, and very bright scarlet flowers. An effective dwarf variety.

Luna * (Saltmarsh).—A very rich and effective sort, with yellow leaves, marked with a bright chocolate-brown zone; the flowers scarlet.

Madame W. Pfitzer * (E. G. Henderson & Son).—A very inferior variety of the oculate series, with zoned leaves, and well-formed flowers, white, with a deep red eye. A plant undistinguishable from this was received from Messrs. F. & A. Smith, under the name of Rosebud.

Mons. G. Natchet * (G. Smith).—A dwarf vigorous-habited variety, with darkly zonate leaves, and ample trusses of finely-shaped bright scarlet flowers. It is also a good pot-plant.

Mons. Barré * (Lee).—A dark-zoned round-leaved sort, with salmon-coloured flowers, paler at the edges, the flowers thrown well up.

Pink Beauty * (Williams).—This has zonate leaves, and very much resembles *Beauté des Surènes*.

Tintoret † (Van Houtte).—A very pretty zonate-leaved salmon rose, of good form, and free-blooming habit.

Woodwardiana * (E. G. Henderson & Son).—A showy variety, with the leaves marked with a faint vandyked zone, the flowers salmony-carmine, and of fine shape.

FRENCH ASPARAGUS.

"A CONSTANT READER" having requested information as to how the large Asparagus seen in the Parisian markets is produced, we forwarded his communication to one of our correspondents, and the following is his reply:—

"The large blanched Asparagus, seen in the Parisian and London markets early in the season, and which commands as much as from 20s. to 30s. per bundle in London, is not obtained by the mode of forcing usually practised in this country—that of taking up the roots and planting them in frames heated by dung linings or other means; for with all the care possible the roots of Asparagus cannot be disentangled from the soil, or removed from that in which they have grown, without serious detriment, and such as renders them unfit for nourishing such heads as they would have produced in their undisturbed state. Attempts to do this, or to equal the splendid forced Asparagus obtained from France, have proved in vain.

"The French have two descriptions of forced Asparagus: one is termed *Asperges vertes*, or green Asparagus; the other, *Asperges blanches*, or blanched Asparagus. The green is obtained by taking up the roots and placing them under a frame on a hotbed; but this mode is not adopted when blanched Asparagus is the object in view. In this case the heat is taken to the plants without disturbing them; in the other the plants are removed and taken to the heat. Heat is requisite in either case, but its results as regards the growth of the plants are not the same, inasmuch as it is not applied under equal circumstances, but, on the contrary, to roots in their entirety, and ready to act with full force to produce a vigorous shoot, able to push through a considerable thickness of soil, or other blanching material, before it comes to the light: hence the giant heads, as they are sometimes termed, of blanched Asparagus. On the other hand, when the roots are taken up, the heat may be adequate to what the plant may require, or be, indeed, as great as it can bear; but instead of acting on sound roots, it has to act on such as are bruised, mutilated, and in a great measure deprived of their spongioles; from such plants, smaller shoots, grown so as to produce green Asparagus, are only expected. Many prefer the flavour of this to that of the large blanched shoots, and, indeed, in the tender green state there is more of the Asparagus flavour than in the blanched, so much so that it is said French cooks boil the latter in water in which Asparagus has been previously boiled, thus communicating much of the flavour of the green to the blanched, the fine appearance of which renders it so desirable.

"The blanched heads may be produced by the following method:—The plantation intended for forcing is disposed in beds about 4 feet 4 inches wide, and on these four rows are planted, about 9 inches apart in the rows. The plants are cultivated for three years, and then in the fourth they are forced, when, being well established, they are in a condition to produce very large shoots. The beds are 2 feet apart, and in this space trenches about 20 inches or 2 feet deep are formed. In commencing to force, frames the width of the bed are put on, and the trenches are filled with hot dung to the top of the frames. The frames are also filled with hot dung till such time as the shoots begin to reach the surface. The sashes are then put on and kept close, no air being given. In cold nights the glass is covered with thick straw mats, which are warmer than Russian mats. The linings are turned and renewed so as to maintain a temperature of from 60° to 75°; but I think 70° is quite high enough. The forcing is commenced in November, and carried on successively till March. After being forced, the same plants are allowed to grow one year in the open air to recover, and they may then be forced again in the next.

"The green Asparagus is procured from hotbeds, planted in preference with

three-year-old plants taken from the open ground, and which have not been previously cut. These are taken up carefully and packed closely on the hotbed, and vegetable mould or leaf mould introduced amongst them, but so that the buds of their crowns may not be covered. In about a fortnight after the sashes are put on green and tender shoots are produced. Thus, by following these methods, either blanched or green Asparagus may be easily obtained.

C."

[“A Constant Reader” also complains of his Celery being much injured this season by wireworms, and asks for a remedy. Perhaps some of our correspondents will state their experience on this subject.—ED. F. & P.]

ON HERONS.

SOME years ago I made a few observations upon Herons in another periodical; but since then, I have had further opportunities of observing their habits. Last season a young one was sent me, which had been confined only for a few days. On his prison door being opened he flew off, and I thought he would have preferred his liberty. In the evening, however, he came familiarly up to me, as if we had been old friends; and after having gobbled up some fish, he took possession of his house, and was quite tame during the season: indeed, so much so, that he followed the men digging, and picked up worms; these, however, he soon abandoned at the sight of fish. When hard pressed for food, he greedily swallowed dead birds, mice, frogs, and rats; but if a rat was large, it was really amusing to see him give his prey a good soaking in a pail of water, in order to make the mouthful slip easily down.

As with the Crane family, it is astonishing the quantity of food which Herons devour; but they can equally well endure hunger a long time. When short of food, I fed mine on garbage from the hog tub; and this led me to observe some traits in his character. When I brought food in a basket, sometimes he waited for me at the garden gate; afterwards, he used to walk and fly before me when I took up the basket, and wait upon the top of the door until I came out; then, after gobbling up some food, he flew home before me. During the winter nights he roosted upon the garden wall; but his habits, like those of wild ones, led him to wander by night, especially in moonlight. When I held up a rat or mouse, and called “Franky,” he flew to me, making a chattering noise. He was also fond of pecking the boys’ legs—in fact, some of them, like the hens, were afraid of him. The latter had reason to be so, for he sometimes felled one of their chickens at a stroke, and swallowed it at one gulp. Wild Herons used to pay him visits, but they ended only in short flights and screaming noises, until the breeding season; then he left me, but came back at the end of that season—not, however, so tame as before—and soon took up his solitary abode by the river.

I may remark that Herons pair in February, congregate in colonies, and make nests on trees somewhat like those of rooks, but larger, and not so closely built. Each nest may contain four or five eggs, of a bluish colour, varying to pale green, nearly as large as those of ducks. As Herons can squat down, their long legs are no hindrance to them when sitting upon their eggs. During the breeding time, they fly both early and late to large moors or lakes, perhaps sixteen miles off, to fish for their craving young. Shortly after these can fly, the colony breaks up, and disperses to lonely places; and the Herons remain singly, or in twos or threes, in order that they may better obtain food. This law of Nature prevails amongst other birds of prey. Kingfishers live

solitary, except when breeding. Afterwards they are very pugnacious, even in captivity, and, though well supplied with food, they will kill one another; which shows they are still governed by the same "wisely ordained instinct, that each may find its own separate location and dependance." Herons, however, are more social, and are attached to their breeding places, which they only visit early in spring. Their arrival is known by their loud clanking noise. Perhaps in some lonely parts of the country, Herons may make their nests in bushes, or on the ground. If my memory is correct, I have read that they do so in the Orkney Islands, at least, round the stump of an old dwarf tree, on which the colony build.

In former days, Herons were considered a dainty dish; and perhaps they are still on the "Game List." I once had a dish of young ones cooked, but soon found that I might eat them myself; some said they smelt rank, others that they tasted fishy. In connection with this subject, I may mention that there is a belief, especially in the north, that Herons have only one gut, and that live eels pass through them; and, also, that they allure or attract fishes by their feet. The first is founded on the fact of Herons dropping eels from their beaks when suddenly alarmed; as to the other, there seems to be no peculiar smell in Herons' feet. The truth is, when one is seen standing motionless knee-deep in water, he is eagerly watching a "blow hole" of an eel, as a dog does a rat's hole, and as soon as the prey puts out its head, down goes the serrated beak upon it. Formerly anglers used to rub their bait with oil from Herons' feet, and even carried a Heron's foot in their pockets to ensure success: and it is said the notion still prevails among the people in the Feroe Islands.

During severe winters, when rivers and lakes are frozen, Herons must be hard pressed for food. A friend told me that he shot one in such weather, and found a snipe in its stomach. Perhaps the snipe was at some unfrozen spring in search of food, and unluckily for him, the Heron came to it on the same errand, and snapped him up. I may further mention that the late Dr. Neil, of Edinburgh, in reply to some of my inquiries respecting Herons, stated that he observed one of his Herons fell, at one stroke of his beak, a rat which was busy stealing a portion of his food.

A writer, I think Mudie, relates a still more dexterous feat of Herons. He observes, that when an eagle hovers above one in the air, the Heron puts his neck under his wing, and thrusts up his beak, keeping a keen eye upon the enemy, and as soon as he descends, he is impaled upon it, and is hurled down dead or mortally wounded; while the Heron flies on his way. I consider this, however, to be a mere fanciful story, for I doubt if a Heron can balance himself like a kite floating in the air, with legs long beyond the tail, and neck tucked under his wing.

Cossey Park.

J. WIGHTON.

NEW BOOKS.

The Treasury of Botany: a Popular Dictionary of the Vegetable Kingdom.

Edited by JOHN LINDLEY, Ph.D., F.R.S., and THOMAS MOORE, F.L.S.,

Assisted by Numerous Contributors. London: Longmans, Green, & Co.

THIS consists of two volumes, of in all upwards of 1250 closely-printed pages, copiously illustrated with wood engravings from drawings by Mr. Fitch; and, in addition, there are twenty beautiful plates on steel, giving representations of the aspects of vegetation in various parts of the world. The work comprises such a vast amount of information on plants and their uses, derived

from the most reliable sources, that it cannot fail to be invaluable to the general reader as a work of reference, and useful to the student as well. The vegetable products used in the arts and manufactures of this country are so diverse in their character, and imported from such distant parts of the world, that information is often sought, and sought in vain, as to their origin and uses; and not unfrequently those even who import or employ a particular article know that it comes from a certain place, and is used for a particular purpose, but nothing of the plant from which it is derived. By those, however, who are desirous of further information, not the imperfect or even inaccurate information too frequent in popular works, it will be found in the pages of the "Treasury of Botany," for there nearly every plant of economical interest is noticed at some length, and even comparatively obscure genera receive a share of attention. The scope of the work will be best understood from the preface, which states that the object "was to bring together, into the form of a dictionary, a concise account of all the plants concerning which a general reader was likely to seek for information; adding thereto, where practicable, longer notices of the more remarkable species, together with such popular matter as would give interest to the otherwise dry technical character of generic or specific descriptions." The plan was arranged with the assistance of Dr. Lindley, and its execution was superintended by him as far as the letter C, after which, owing to his declining health, the whole task of supervision devolved on Mr. Moore. The names of the contributors of the several articles are well known, and though, of course, we do not pretend to have read through a work of such extent, we have, so far as we have seen, found the information trustworthy and the style pleasant. The descriptive letterpress of the illustrations of the aspects of vegetation in different parts of the world is contributed by Dr. Seemann; and there are, besides, a useful glossary of botanical terms, and a list of the English, French, and local names of plants.

One extract will serve to give an idea of the information afforded under each heading. It relates to the genus *Agave*, respecting which the erroneous popular notion prevails that one of the species, the American Aloe, flowers but once in a hundred years. After describing the characters of the genus, Mr. Moore says:—

"The best known species, *A. americana*, commonly called the American Aloe, affords a very good illustration of the family. This species is almost stemless—that is to say, its tuft of massive leaves is seated close to the ground, and they spread out on all sides so as to occupy considerable space. These leaves are very thick and fleshy, consisting of hard, firm, pulpy matter intermixed with fibres; they are from 3 to 6 feet long, furnished with hard spines, both along the margins and at the point. These leaves are very durable, continuing to exist for many years. The plants are long in arriving at a mature or flowering age; indeed, so slow is their progress, under the artificial conditions in which they are placed in our gardens, as to have led to a popular though erroneous notion that they flower once only in a century. In reality they flower but once, the mature condition being attained in a longer or shorter period, ten to fifty or seventy years or more, according to the accelerating or retarding influences under which they are placed. Having, however, acquired full growth, the plant produces its giant flower-stem from the centre of the leaves, after which it perishes. New plants are formed around the base of the old one in the form of suckers. After the first appearance of the stem, it grows very rapidly, until a height of from 15 to 20 or even 40 feet is reached; and, towards the tip, a multitude of symmetrically-disposed horizontal branches are produced, at the ends of which branches are crowded the numerous erect yellowish green flowers, by which a sweetish liquid is secreted. The flowering plant remains for some weeks an object of interest, the flowers being durable and produced in succession.

"The American Aloe appears to have been first introduced to Europe in 1561, at which date it is recorded as being in the possession of Cortusus. Parkinson, in 1640, relates that it was first brought into Spain, and from thence spread into all quarters, but is silent as to its being in England. A plant flowered in Paris in 1663. Mr. Verspriet, of Lambeth, flowered one, 12 to 15 feet high, about 1698, it being then a great rarity. Two were bloomed at Hampton Court about 1714. There is a wood engraving extant with the inscription '*Aloe americana*'

quæ Sonderbusæ floruit, 1662. A plant flowered at Leipsic in 1700. Mr. Cowell, in 1729, flowered one at his garden in Hoxton; and this, he asserts, was the first seen in England, the others, mentioned above, not being the true American Aloe. There is a plate of this plant, by Kirkall, in mezzotinto, dated September 23, 1729. Another flowered at Eaton Hall, in 1737; a plate of it, engraved by Toms from a drawing by Badeslade, bearing date November of that year. This plant opened the crown for flowering on June 5th; the stem-bud appeared on the 15th, and grew 5 inches a-day for some weeks; the flower-branches were perfected in twelve weeks, and then it stood for a month while the buds were forming; the number of flowers was about 1050. Two plants, about fifty years of age, flowered at Hampton Court in 1743, their respective heights being 27 feet and 24 feet. The flower-stems appeared on June 3rd, were in perfection in the middle of August, and continued blooming till the middle of October. A plant which flowered near Carlsbad in 1754 was 26 feet high, and produced twenty-eight branches, which bore above 3000 flowers. Another flowered at Leyden in 1760, and a third at Friedricksberg, in Denmark, 22 feet high, with nineteen branches, and more than 4000 flowers. The tallest of which we have any account, was one that bloomed in the King of Prussia's garden, and this reached 40 feet in height."

A Practical Treatise on the Culture of the Pine Apple, by DAVID THOMSON, Archerfield Gardens. Blackwood & Sons, Edinburgh and London.

THOSE who had the advantage of being present at the Edinburgh International Show in September last, will not require to be told that the author of this work is a most successful cultivator of that which has been called the "king of fruits;" and there are but few who do not know Mr. Thomson as a thoroughly practical writer on gardening subjects. Accordingly it will be found that in this treatise plain directions are given as to the mode of securing good crops of Pine Apples, and as these directions are the experience of one who has been very successful in this branch of fruit culture, they may fairly be supposed to lead to a like result in the case of those who properly follow them out.

On the subject of pineries Mr. Thomson says:—

"For summer growth I would give the preference to span-roofed houses, running north and south. In the morning and afternoon they receive the full sun, and for a period in the middle of the day, when the sun is in his meridian, the Pines are, in such houses, partially shaded from the scorching rays of the sun, while at the same time they are exposed to a great diffusion of light. Such houses are decidedly the best for summer growth; but, for six months of the year, they do not, from their position, embrace so much direct sunshine as a lean-to house facing due south. Moreover, from the greater amount of glass as a radiating surface in span-roofed houses, they require more fire heat to keep up the temperature. In these respects the lean-to gives advantages over the span-roofed pinery in whatever position the latter is placed. For starting Pines in December and the two following months, as well as for swelling off fruit during winter and early spring, I recommend lean-to houses.

"For a suker-pit, a lean-to pit is very well adapted, as the young plants can be kept near the glass, and well exposed to light. It will be observed that the accommodation which I prefer and recommend is partly span-roofed and partly lean-to.

"In the formation of the Pine ground, the lean-to or early houses should be on the north of the space selected, so that the back wall forms the shelter from the north which is so desirable; the span-roofed structures to stand north and south, or at right angles with the early lean-to houses, and at a sufficient distance from them not to obstruct sunshine. The early house would thus be nearest the boiler in the back shed, and would form the very best shelter to the span-roofed or succession-pits, which should not be very high. I am aware, indeed, from experience, that such houses and arrangements are not absolutely necessary for the production of first-rate Pines; but these arrangements afford great advantages and convenience, and I recommend them as admirably adapted for the culture of this noble fruit.

"The Pine Apple being a fruit which requires a high temperature, particularly in some of its stages of growth, there should be a good command of heat both for top and bottom. It is not only a false economy to stint the amount of pipes employed, but a larger heating surface moderately heated is much more conducive to the health of plants than a smaller surface kept at scorching heat. I therefore recommend a liberal amount of pipes and plenty of boiler power. Besides this, I feel fully persuaded, from my experience in the use of coverings applied to the glass, that, in the case of fruit swelling off during the colder months

of the year, the double glazing now discussed in the gardening press would be an immense advantage. A high and steady temperature could be much more easily and economically maintained, and without a parched atmosphere, which in the case of hard forcing in winter requires so much and such constant counteracting.

"I have a decided objection to flat-roofed pineries. They are dark, and very productive of drip in winter, both conditions most undesirable in the culture of most plants, and particularly in that of the Pine Apple. Ventilation should be amply provided for at the apex of the roof; and, particularly in fruiting-houses, there should also be ventilators at intervals along the front, so placed as to cause the air to pass inward in contact with the hot-water pipes. Front ventilation is not to be recommended as a rule, but it is well to provide for it in the erection of pineries, so that in very hot calm days it can be applied, especially in the case of fruit that are colouring.

"All pineries and pits should be provided with a steadily acting steaming apparatus, which can be used or not according as circumstances demand. An open gutter rising out of the flow-pipe at the front of the house, into which the water on its way from the boiler flows and passes along the whole length of the house, and descending into the return-pipe, is the best means of keeping up a steady supply of moisture that ever I have tried. This can be used or not, at the seasons when moisture is required or not required, by simply corking up the pipes through which the water flows into the open gutter. The pipes should also be so arranged that, by means of stop-cocks, the bottom heat can be shut off, and applied and regulated according to the amount recommended for the different stages of the growth of the Pine.

"In all Pine-stoves there should be a tank into which to conduct the rain water from the roof, and passing through the tank a coil of hot-water pipe to warm it."

OUR MONTHLY CHRONICLE.

THE year 1866 will be a busy one; the horticultural campaign has commenced early; already two spring shows have been held in London, and others will follow in quick succession throughout the summer, at the Regent's Park, Crystal Palace, and Kensington; but the great event of the season will be the International. The progress of this is most gratifying. Fresh assurances of support continue to be received, as well as substantial additions to the funds necessary for bringing to a successful issue this great undertaking, which it is to be hoped all will assist to the best of their ability. Though not in connection with the Exhibition, a proposal was made at a meeting of gentlemen interested in horticulture, with Mr. W. Paul in the chair, to hold a public dinner on the 24th of May, so as to afford those visiting the Exhibition an opportunity of meeting together, as it would be impossible for all to do at the banquet at the Guildhall. The proposition was cordially approved of, and a Sub-committee appointed, with Mr. R. Dean as their Honorary Secretary, to carry out the arrangements.

ROYAL HORTICULTURAL SOCIETY.—At the first Spring Show, which took place on the 15th, there was a very excellent display, particularly of Hyacinths, which were the speciality of the occasion. Other spring bulbs, however, were also well represented, and the Roses, Rhododendrons, and other forced greenhouse plants and novelties were produced in good force. Of the new Hyacinths an account is given in another page; but the magnificent spikes of those shown by Mr. William Paul, of Waltham Cross, in the class

for eighteen, cannot pass unnoticed. The sorts were S.B. King of the Blues, a noble spike, fully justifying the anticipations formed of it when it first came out; Grand Lilas, Charles Dickens, and Marie; D.B. Van Speyk, Garrick, and Laurens Koster; S.R. Garibaldi, Von Schiller, Solfaterre, Koh-i-Noor, and Macaulay; D.R. Lord Wellington; white, Alba maxima, and Mont Blanc; black, or nearly so, Feruck Khan, and General Havelock; and Ida, yellow. It is impossible to speak too highly of this fine collection, for the spikes were massive, and their colours most beautiful and fresh. As a matter of course a first prize was awarded; the second went to Messrs. Cutbush, whose collection also contained many fine spikes; but the run between the two great competitors was not so close as in former years. Mr. Kirtland, Albion Nurseries, Stoke Newington, came in third. In the amateurs' classes some very good spikes were shown by Mr. Young, gardener to R. Barclay, Esq., Highgate, and Mr. Bartlett, of Hammersmith, and some were also shown in glasses. A fine collection of 120 pots, which contributed much to the effect of the Show, came in addition from Mr. W. Paul, who also exhibited collections of Tulips, Polyanthus, Narcissus, Crocuses, and Lilies of the Valley, and received first prizes for each. Collections of similar subjects also came from Messrs. Cutbush and Mr. Macintosh, Hammersmith, among nurserymen, and from Mr. Young and Mr. Bartlett among amateurs. Of Roses, beautiful groups were shown by Mr. W. Paul and Messrs. Paul & Son, forced Rhododendrons by the first-named, Messrs. Cutbush and Mr. Young; and there was a good display of

miscellaneous stove and greenhouse plants from Messrs. Lee, of Hammersmith. A few greenhouse Acacias and forced shrubs were exhibited by Messrs. Cutbush and Mr. Young, for which the former were awarded first prizes; some small Epacrises were also shown; and from Mr. Bull came several handsome varieties of *Aucuba japonica*, some of which were in fruit, and a numerous collection of new and rare plants. Some fine fruiting *Aucubas* were also sent by Messrs. Lee.

At the Floral Committee on the 20th, first-class certificates were awarded to Mr. W. Paul's new Hyacinths, *Vunxbaak*, Sir Henry Havelock, and Bird of Paradise, and to his Black Prince Rose, a fine deep velvety crimson. Of Orchids there was a good display, and several special certificates were awarded, and among Chinese Primulas there were several acquisitions, which have been noticed in another article. Fruit was confined to Black Alicante, Muscat of Alexandria, and Lady Downe's Grapes, of which Mr. Tillyard, gardener to J. Kelk, Esq., M.P., exhibited excellent bunches in beautiful condition.

At the usual fortnightly meeting Lord H. G. Lennox, M.P., presided, and the room was crowded with visitors anxious to see the blossoms of *Amherstia nobilis*, which it had been notified would form the subject of a lecture by Mr. Bateman. These came from Chatsworth, where the plant has this year produced numerous racemes of its glorious crimson blossoms; but though the late Duke of Devonshire, a great enthusiast in gardening, made it the object of a special mission, and Mr. Gibson, now the Superintendent of Battersea Park, was successful in introducing the first plant of it into this country in 1837, it did not flower for the first time in England at Chatsworth, but at Mrs. Lawrence's, at Ealing Park. Mr. Bateman, after giving some instances of the poisonous properties of *Andromeda floribunda*, which appear not to be sufficiently known, and commenting on the various Orchids shown at the meeting, gave a history of the discovery and introduction of the *Amherstia*. He ascribed the non-success in flowering it at Chatsworth to the plant having been grown in a kyanised tub. Mr. Bateman's remarks were listened to with much attention, and on their conclusion it was suggested by the Chairman that it would be a graceful act to present the blossoms to Lady Hay Williams, the daughter of the Earl of Amherst, partly in whose honour it was named. Twenty-one new members were elected, and seven horticultural societies admitted into union. With reference to this, it may here be stated that the Royal Horticultural Society now offer certain privileges to societies admitted into union with it—viz., that of receiving copies of the "Proceedings" and "Journal," a transferable ticket conferring certain privileges as to admission to the gardens at Kensington, and purchase of

tickets; forty orders of admission to Kensington and Chiswick; participation in the ballot for plants; a share of the seeds and cuttings distributed; and the right of exchanging plants. It has also been decided that gardeners may, on application to the Assistant Secretary at South Kensington, receive the Journal of the Society at one-half the charge to the general public.

ROYAL BOTANIC SOCIETY.—The first spring show of this Society was held on the 17th, and being only two days later than the one at Kensington, was in a great measure a repetition of it. It was, however, a very effective display, and more extensive than the corresponding show of last year. In Hyacinths Mr. W. Paul walked over the course with his fine collections already noticed; but Mr. Davies, of Stanley Nursery, Old Swan, Liverpool, had a set of twelve, among which were some very good spikes, though by no means equal in quality to the splendid ones from his more successful concurrent. Tulips, Polyanthus, Narcissus, Lilies of the Valley, Crocuses, and Rhododendrons were again shown in great perfection by Mr. W. Paul, and nice collections of Cyclamens came from Messrs. E. G. Henderson and Mr. Wiggins, of Isleworth. Of Roses, two groups, the one from Mr. W. Paul and the other from Messrs. Paul & Son, were of remarkable beauty, and there were also some boxes of excellent cut blooms, as well as of Camellias. Stove and greenhouse plants, both fine-foliaged and flowering, were in tolerable abundance, there being exhibitions of these from Mr. Williams, Messrs. Lee, and Mr. Wheeler, gardener to Sir F. Goldsmidt, Bart.; and of new plants, &c., Mr. Bull again contributed an extensive collection. Forced shrubs and Acacias were shown by Mr. Young, who also took the first prize for Hyacinths in the amateurs' class, and the second for new Hyacinths; but the best exhibition of this kind consisted of a dozen plants of *Deutzia gracilis* from Mr. Reeves, of the Ladbrook Nursery, Notting Hill. They were in six-inch pots, and were perfect masses of bloom. Two new varieties of Chinese Primulas from Messrs. E. G. Henderson made their appearance, and both appear to be great acquisitions; one was called *Stewarti*, and had flowers as large as a five-shilling-piece, white, beautifully mottled and striped with purplish crimson; the other was named Mrs. Eyre Crabbe, and was smaller than the preceding, but double, and the white ground suffused with pink.

SANVITALIA PROCUMBENS.—Messrs. Haage and Schmidt, of Erfurt, give, in a recent Number of the "Revue Horticole," an account of a double variety of this pretty annual, and which they consider one of the most valuable acquisitions in its way which has been made for some years. It sprang up among a bed of the single variety; and, after having grown

it for two years, Messrs. Haage & Schmidt state that the double flowers are so constantly reproduced that not more than 10 per cent of the seedlings come single. The double variety is more vigorous than the single, and in the flowers the black disk of the latter has entirely disappeared. The flowers are an inch or more in diameter, double to the centre, and of a uniform bright yellow. It is stated that they are of longer continuance than in the single form, and that they are also produced in greater profusion. The plant is recommended as producing a fine effect as a dwarf bed or edging.

MR. J. GOULD VEITCH having returned from Australia and the South Seas, we have much pleasure in stating that he and his brother, Mr. Harry J. Veitch, have been admitted into partnership with their father, and the business of the Royal Exotic Nursery, Chelsea, and Coombe Wood establishment, will now be carried on under the designation of James Veitch & Sons.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.—Influential Local Committees in conjunction with this undertaking have been established in England at Sleaford, Bristol, Oxford, Warrington, Nottingham, Derby, Leamington, Hereford, Hertford, and Doncaster; in Scotland for the west, south, and north of that country respectively; and in Ireland for Dublin and Belfast. Honorary Local Secretaries have likewise tendered their services at Manchester, Taunton, Ascot, Chester, Bradford, Ipswich, Chelmsford, Coventry, Redditch, Leicester, Huntingdon, Chepstow, and in Jersey. Some of the above Committees have raised considerable sums—thus, that for Glasgow and the west of Scotland has contributed £127 3s.; Doncaster, £50 8s.; Bristol, £18 18s.; Ascot, £14 14s.; Warrington, £24 3s.; Chelmsford, £63; Coventry, £26 5s.; Manchester, £31 10s.; Oxford, £5 5s.; Derby, £21 1s.; Belfast, £36 15s.; Hertford, £10 10s.; Elgin and North of Scotland, £25 4s. The Committee of the Botanical Congress, to be held under the presidency of Professor Alphonse de Candolle, now comprises the names of James Bateman, Professor Babington, W. Baxter, J. J. Bennett, Rev. M. J. Berkeley, Professor Bentley, W. Carruthers, Professor Daubeny, Charles Darwin, Dr. Hogg, W. Masters, J. McNab, A. G. More, Dr. Moore, T. Moore, J. Miers, W. Paul, Dr. Prior, J. G. Veitch, Dr. Welwitsch, Dr. Wight, and James Yates; and papers have been promised by Mr. J. E. Howard, Dr. F. Mueller, Professor E. Morren, Professor Lecoq, Mr. W. G. Smith, Dr. Seemann, Dr. Masters, M. Van Hulle, Mr. Tuffen West, Dr. Moore, Mr. A. G. More, Mr. James Anderson, and others. It may be of interest to add that the Right Hon. the Lord Mayor has appointed six of the Corporation to assist in making the ar-

rangements for the grand banquet to be held at the Guildhall on May 22nd.

MR. WILLIAM PAUL'S SHOW OF SPRING FLOWERS is held this year, as last, at the Royal Horticultural Society's Gardens, South Kensington. It was opened to the public on the 21st, and will continue till the 3rd of this month. It is a charming and effective exhibition, most tastefully arranged, and the flowers individually are of the highest merit, as may well be supposed, since many of them are those with which Mr. Paul has been so successful at the spring shows.

MESSRS. CUTBUSH'S SPRING SHOW has been held this year at the Crystal Palace instead of at the Highgate Nurseries as heretofore. It continued from the 17th to the 31st of March, during which time it offered a most attractive display. It occupied a double row of tabling 300 feet in length, and consisted of somewhat less than 900 pots of Hyacinths, Tulips, and miscellaneous flowering plants, the whole covered with a new canvas awning, similar to that used at the Rose Show, and with such good effect in showing off the colours of flowers to the best advantage. Messrs. Cutbush's exhibition, it is scarcely necessary to add, was of great excellence.

NEW VARIETIES OF DIANTHUS.—An account of two new varieties of Dianthus is given by M. Carrière in "L'Horticulteur Français;" one is named Madame C. Petit, the other Dianthus Quetierii, after their raiser. Madame C. Petit was obtained by fertilising the Clove Carnation with the pollen of Dianthus Heddewigii, and resembles the male parent in the character and colour of the flowers, and the female in its habit of growth. The flower-stems are from 15 to 20 inches high, erect, and stiff; and the flowers velvety, dark reddish crimson, the edges of the petals irregularly toothed. It is described as being a great acquisition, being not only perfectly hardy, but always in flower till its blooming is arrested by frost. Dianthus Quetierii is stated to have been raised from Dianthus Heddewigi and Dianthus hybridus multiflorus. It is described as being very dwarf, the leaves about 4 inches in length and a quarter of an inch in breadth, the flower-stems barely 8 inches high. The flowers are very double, dark reddish crimson, and produced in such long succession that the plant may almost be said to be perpetual-flowering. From its low growth it is particularly well adapted for edgings; and the foliage forms a fine green carpet, which serves to set off the deep colour of the flowers.

OBITUARY.

MR. FRANCIS DICKSON, of the firm of Messrs. F. & A. Dickson, of 106, Eastgate Street, Chester, died at the Upton Nurseries on the 3rd of March, in his 73rd year, having been born at Edinburgh on the 25th of December, 1793. He was the youngest son of the

founder of the well-known nurseries of Dickson, Brothers, of Edinburgh, and the last of his immediate descendants engaged in the nursery business. He left Edinburgh at an early age, and entered the celebrated nurseries of Malcolm, of Kensington, and after studying his profession there for some time, he returned to Edinburgh, and in 1819 commenced business at Chester. He was the intimate friend of Mr. Loudon, and of Thomas Andrew Knight, Esq., and being a man of great information on all branches of the nursery business, he was frequently consulted by

them. In the cultivation of hardy trees and shrubs and herbaceous plants he was enthusiastic, and the collections of these which he had brought together at Chester are amongst the most extensive in the country. All bear testimony to his genial, kindly disposition; and the respect in which he was held was evidenced by the large number of his friends and fellow townsmen who attended him to his last resting-place, in Chester Cemetery, on the 8th. His two sons, Mr. F. A. Dickson and Mr. Thomas Dickson, succeed him in the business.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Orchids.—As the successful blooming of these fine plants depends on the strength and vigour of the shoots, do not allow anything to check their progress. A moist atmosphere, without, however, encouraging water to lodge about their roots, and a nicely regulated temperature, will be the principal points to attend to.

GREENHOUSE.

Camellias.—The blooming season is now nearly over, and some cultivators prefer shifting them into fresh pots at this season; if such are requisite, dry turfy loam and peat, two-thirds of the former to one of the latter, will be a safe compost. Pay particular attention to well draining the pots; use no manure in the soil, but depend on it in a liquid form for what extra help they may require. Give them a little extra heat, by early closing the house, now that they are making their wood, and use the syringe freely. *Cinerarias*.—To prolong the beauty of the bloom, attention must be paid to watering and shading. In selecting seedlings, compare them with the best out in the same class. To procure good seed, select a few of the finest-shaped kinds, of good habit, and place them in a frame or house by themselves, and keep the bees from them. The work of fertilisation should be done by hand, using a camel's-hair pencil. *Epacris*.—Early-blooming kinds should be cut in and placed in a close frame, or moderately warm house, to encourage them to break, syringing overhead to assist them; when started a couple of inches, repot such as require it; turfy peat and sand, with plenty of drainage, will grow them in perfection. *Pelargoniums*.—These will be making great progress this month, and, to prevent their becoming drawn, should have plenty of room. Continue tying the branches as they increase in size, and keep the foliage clean. Green fly must be kept under; fumigate effectually, just before the plants are coming into bloom, two nights in succession. Watering must be well attended to this month; the pots being full of

roots, the soil dries very fast during bright weather. Shade as little as possible until the plants are coming into bloom; a little shading, however, on a bright day following dull weather, would be beneficial.

CONSERVATORY.

As solar heat and light increase, the house may be closed rather earlier in the afternoon, to dispense with fire; give air, however, sometimes in the morning, and let the necessary waterings and cleaning be done as early as possible. As the permanent plants have now commenced growth, let them stand clear, that the young shoots may obtain their full share of light. Let the climbing plants be trained occasionally, avoiding, however, anything like a formal arrangement.

PITS AND FRAMES.

Take every possible means to harden off the stock; the propagation of such things as Verbenas, and other soft-growing plants, may yet be prosecuted. Stocks and other annuals required early should be forwarded in cold frames, and others sown for succession.

FORCING.

Vines.—Look at last month's directions; bring on succession vineries gently. Vines in pots, and those in inside borders, keep moist by occasional waterings, using liquid manure freely during active growth. *Peaches*, disbud from time to time; tie in shoots; syringe frequently; close rather early in the day to obtain additional heat and save fires; give air liberally in the forenoon; avoid draughts. Keep the succession-house rather dry till the fruit has set; afterwards syringe, &c., as directed last month. *Strawberries* getting ripe, allow more air to colour and flavour them. Bring on successions; water with liquid manure while swelling. *Pines* out of bloom, keep damp at root and top; maintain a steady bottom heat; the temperature of the house should be by night 65°, by day 75°. Successions recently potted, keep close till growth commences, after which give more air; do not water till they begin to make fresh roots. *Melons*, stop and train; keep

a good heat; fertilise the female blooms; earth up as wanted; bottom heat from 75° to 80°; top heat by day the same, 68° by night; water sparingly; use pure loam without manure to grow them in, and make it rather firm. Close early on sunny days, damping the walls or soil at the same time. *Cucumbers*, stop and train carefully; keep the vines thin; avoid taking off full-grown leaves of either Cucumbers or Melons; keep the fruit in a cool place when cut; the heat, both top and bottom, should be the same as for Melons. Sow hardy kinds towards the end of the month, for ridging out under hand-glasses.

KITCHEN GARDEN.

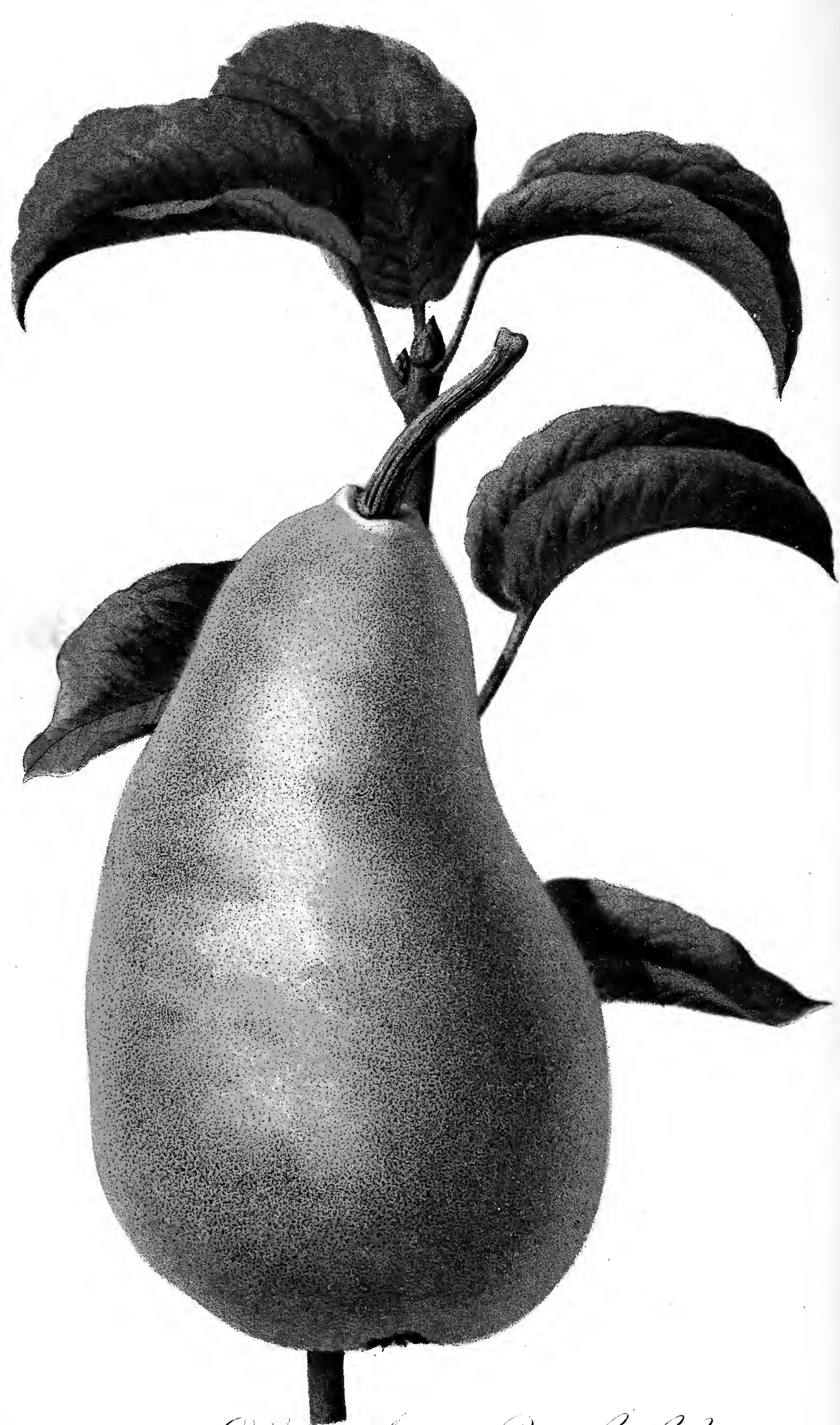
Continue to plant out Cauliflower, Lettuce, &c., from the frames, choosing a showery day for the purpose. A deep rich soil should be afforded them. Earth up and stick Peas when sufficiently high, and sow the taller kinds for the main summer crops; keep sowing every fortnight Broad Beans, and earth up early-planted ones. Dwarf Kidney Beans and Scarlet Runners may be planted in warm situations. The main crops of Borecole, Broccoli, Savoy, Brussels Sprouts, &c., should be sown forthwith. Complete sowing Carrots, Beet, Salsafy, and Scorzonera, &c. Prick out the early-sown Celery under a hand-glass, or in a frame. Sow in the open ground for winter crops when the weather is showery. Divide herbs, and make fresh plantations. Sow to make good for failures. Towards the end of the month get a ridge prepared for hand-glass Cucumbers.

FLOWER GARDEN.

Finish the planting of deciduous and evergreen shrubs without delay; the latter will, however, succeed till the end of the month, if the weather be showery. Mulching, however, and frequent dampings overhead will be necessary. Turn over and prepare beds and borders, for planting the various bedding-out plants, that everything may be in readiness when the season arrives. Phloxes, Pentstemons, Carnations, Stocks, and similar things, should be turned out into beds, &c., without delay. Sow annuals. Many kinds of perennial plants may yet be divided for increase, or where the plants are too large. Attend to neatness, and watch for vermin. Finish pruning Tea and China Roses, and their hybrid varieties, and other shrubs, as danger from frost is nearly over. Climbing plants against walls and trellises should be pruned and neatly tied in, if not previously done. *Roses*.—Planting is now becoming somewhat hazardous; but the danger may be obviated by carefully syringing the heads and stems, should the weather continue dry. Pruning should now be finished, both with hardy and tender varieties. In pots the maggot will require vigilance to prevent its doing much mischief; the first green fly, too, must be kept down on its appearance by fumigation. Where blossoms are making their appearance liquid manure should be given once or twice a-week.

FLORISTS' FLOWERS.

Auriculas.—In some localities this chaste spring flower is already repaying the care and attention that have been bestowed upon it, by expanding its beautiful blossoms. The frames should be shaded with thin canvas during the heat of the day, and about the middle of the month remove them to a cool situation facing the north. This will prolong the bloom considerably. Water rather freely now when the plants are growing. *Carnations and Picotees*.—Finish potting for bloom without loss of time. The pots should be raised from 2 to 3 inches from the ground, on strips of wood. If there are any plants left after filling all the pots required, they may be planted out in well-prepared beds, which should be elevated, in case it be a wet summer, as well as for the convenience of layering. Sparrows at this season often do much mischief by eating the points of the young shoots; pieces of grey worsted tied along the rows, a few inches above the plants, will prevent the mischief. *Dahlias*.—This will be a busy month as regards this plant. Propagating will be at its height. Pot off the plants as soon as rooted, growing them in gentle heat, and harden them towards the end of the month, when, if room can be afforded, they may be repotted into three or four-inch pots. Pot-roots, if started now, will make good plants; they will not require so much heat, when once started, as spring-propagated plants. Sow seeds in a brisk heat. *Fuchsias*.—All that is required to make fine plants is plenty of room; give this and a moist genial atmosphere, and they may be grown to any size, if good rich soil is used. Cuttings may still be put in for late-blooming plants. *Hollyhocks*.—Prepare ground for planting out, which may be done towards the end of the month. If the ground has been deeply trenched and plenty of manure given, the Hollyhock will succeed in almost any soil, but should not be planted under trees, or too near hedges. The plants should not be allowed to become pot-bound; give them a shift if the planting has to be deferred. Seedlings, if large enough, may be planted out at once. *Pansies*.—Take the small side-shoots, and those produced from the centre of the plant, and put them in as cuttings in store pots, under glass, in a cool situation. These will make fine plants for blooming in September, and they will again produce considerable increase. By this treatment the spring blooms are much larger, as the principal shoots are strengthened. *Pinks*.—See that the sparrows do not attack these; if so, scare them away in a similar manner to that recommended for Carnations and Picotees. If for exhibition, thin the side-shoots as soon as long enough. *Tulips*.—Protect these well from hail-storms. The less rain they have the better; but if by any chance they should become wet, frost must be kept from them until they are thoroughly dry.



Nom. Mons Leon C. Clerc.

VAN MONS LÉON LECLERC PEAR.

WITH AN ILLUSTRATION.

It is now about twenty-five years since the subject of our present illustration was introduced into this country. At that time the cultivation of fruits had not acquired that great development which is so characteristic of the horticulture of the present day, and it was not till many years after its introduction that Van Mons Léon Leclerc was recognised as one of the best Pears. Even now it is not so much grown as its great merit recommends it to be.

This excellent Pear was raised by M. Léon Leclerc, at Laval, in the department of Mayenne, France. It is not known exactly what was its parent, for M. Leclerc had sown seeds of St. Germain, Glou Morceau, and Easter Beurré; but judging from the appearances we should be inclined to suppose that it has taken its origin from the St. Germain. The tree first produced fruit in 1828; and in October, 1837, M. Leclerc sent specimens of the fruit through M. Vilmorin to a meeting of the Paris Horticultural Society, with the following note:—

“M. Van Mons has not only handsomely accepted the dedication of this Pear in declaring to me that he regards it in all respects of the first rank, but also, by a refinement of *politesse*, he has exacted that the name of the raiser who paid him this compliment should be placed in continuation with his own, for the sake of distinction. This is, then, the Pear Van Mons Léon Leclerc. This explanation was necessary to justify such a designation.”

The fruit is of the largest size of dessert Pears, and is of an oblong shape, uneven and undulating in its outline. The skin is of a pale dull yellow colour, covered with russet dots and traces of russet. Eye open, with spreading segments, set in a very shallow basin. Stalk from 1 to $1\frac{1}{4}$ inch long, set on the end of the fruit with a slight depression, or obliquely without any depression. Flesh yellowish white, buttery and melting, very juicy, sugary, rich, and deliciously flavoured.

A dessert Pear of first-rate excellence, which ought to be grown in every collection. It ripens in the end of October and during November.

EARLY-FLOWERING TULIPS.

I AM so fond of the beautiful tribe of spring flowers that I must be pardoned for this annual reference to them. I contend strongly and earnestly for their use in out-door spring gardening, because they are easily accessible, highly attractive, and deeply interesting. At this time I have in my own garden some eighty varieties of early single and double Tulips, of all shades of colour, from the pure white of White Pottebakker and Alida, down to the rich dark crimson of Couronne Pourpre, or the fine shade of violet-purple of Van der Neer; and many a neighbour and passer-by stops to look and admire, touched by those subtle forces we call “beauties of nature,” that can and do powerfully influence the heart of humanity. These flowers commenced to bloom a month ago, and they will continue in beauty nearly to the end of May. With a few Snowdrops, Aconites, Crocus, and Scillas to “open the ball,” what could be better adapted for spring gardening, seeing that the series would give an average of bloom extending over a period of three months? Let me here observe that such a result is attained if soil and situation be appropriate. My plot of ground is open to the influence of the sun till mid-day. The top soil was very shallow and clayey, resting indeed on a clay subsoil; and having been undisturbed for some

time previous to my taking possession of it, it was by no means in "high condition," as we say of a Derby favourite or a university crew.

I first trenched the ground to the depth of 18 inches, placing all the vegetable refuse I could get from it at the bottom of the trench. I then forked-in to the depth of 8 inches a coating of rich manure, and a few days previous to planting the bulbs I added 4 inches of road sand, which was slightly forked-in at the surface. When planting, the bulbs were also imbedded in road sand, and under these conditions, out of some four hundred bulbs there have been but very few failures indeed. The plants are all strong, and yet dwarf, and the flowers large and well-coloured. I have flowers of Keizer Kroon, Proserpine, White Pottebakker, Yellow Pottebakker, Van der Neer, Vermilion Brilliant, and others of the choicer kinds as fine as ever I saw them in pots, and this despite the cutting east wind that prevailed during the latter part of March and early in April, and that even now as I write is playing merciless sport with the tender shoots and the opening flowers in my little parterre, unchecked by any friendly shelter to ward off the unkindly attacks it persistently makes.

I may say that as yet the majority of the newer flowers I am growing are not yet in bloom, and this because planted late. What are already in bloom were to be seen a few weeks ago in the grand collections of spring-flowering bulbs exhibited by Mr. William Paul at the Royal Horticultural Gardens, South Kensington, and by Messrs. W. Cutbush & Son, of Highgate, at the Crystal Palace, Sydenham. Such a collection as Mr. W. Paul's was never before seen, and that during a season of which it was confidently predicted that "Hyacinths and Tulips would be below the average quality of the bloom." Unquestionably Mr. W. Paul has this season illustrated by his Hyacinths and Tulips especially a "cultivable process" of the highest value and fitness, and wherever he has exhibited he could say with Cæsar, "I came, I saw, I conquered." What superb Hyacinths were seen at South Kensington in the last week in March! Whoever saw such a Laurens Koster, D.B., not only distinguished by the unusual size and symmetry of spike, but having that peculiar, rich violet-blue hue scarcely displayed by any other Hyacinth? And then such a Lord Wellington, D.R., and King of the Blues, S.B., the premier flower of this division; or such a Garibaldi, S.R., or Madame Van der Hoop, S.W., and many others equally fine! I shall anticipate with more than usual interest the next meeting in 1867 between my two friends Messrs. Paul & Cutbush, for now they appear to be on a perfect level as skilful cultivators.

Looking over Mr. Paul's collection of Tulips, I saw that he had produced some new double flowers, very novel in colour and striking to the eye. Unfortunately they lack the substance of the old Tournesol, or Duke of York, or the later-flowering variety Couronne Impériale. These new flowers were of good size, and before they became fully expanded very pretty indeed. The following were the most noticeable:—

Salvator Rosa, ground colour pink, with flames of deep rose; pretty and novel. Albano, pale blush ground, feathered with bright pink, the ground colour so pale that one flower was pure white; very novel and pleasing. Murillo, very like Albano, indeed scarcely dissimilar enough to be considered as two varieties; growth and habit also identical. Lac Gris de Lin, glossy rosy puce, edged with whitish sulphur; novel and good. L'Unique, rosy carmine with nankeen base and edging; quite a Tournesol shape. La Baroque, rosy crimson base, heavily edged with white, but only semi-double. General Dann, semi-double only; scarlet crimson, feathered and flaked with gold; showy. Grenadier, a semi-double Brutus, with a little more depth of colour at the base of the flower; very showy. Konings Jurveel, glowing rosy crimson flaked with white; dwarf and showy.

Flowers deficient in substance, as many of these are, should not be suffered to expand fully. A silken thread should be tied round each to preserve a globular form to the flowers. The march of improvement has belonged to the single rather than to the double flowers; but it would seem that efforts are now being made to improve the latter, an earnest of which Mr. Paul has instanced in the flowers mentioned above.

Quo.

REMARKS ON FRUIT TREE CULTURE.—No. 9.

RESUMING the subject of the treatment of the Peach tree on walls, I would observe, that the process of disbudding, or the entire removal of certain shoots, should always take place when they are in a very young state—that is to say, before they have very much grown out. In this respect the operator must be guided by the season, because it often happens that a week's sun and mild temperature towards the end of March will start the buds into growth, to be succeeded by, perhaps, a month of easterly winds, and a cold, parching, low temperature, which will keep them in much the same state, so that they are better left on because of the partial shelter they will afford to those shoots which will eventually have to be left. When, however, through the advance of the season, a growing temperature may be reasonably calculated upon, the process should commence at once, otherwise much strength is needlessly wasted, because every shoot takes a portion of the nourishment sent up by the roots, and the more the superfluous shoots are allowed to absorb, the worse it is for the permanent ones.

The operation is of itself a most important one, and its objects should be well understood and carefully studied. When this is the case, no indiscriminate or haphazard performance will satisfy the careful operator. Many persons remove the shoots by a backward stroke with the finger and thumb; but I consider it always best to use a small and keen-edged knife, and at the first going-over to remove all the foreright shoots, or such as are likely to project outwards from the wall; the next time, which will be after an interval of a week or ten days, to thin out the remaining shoots, so as to leave them equidistant along the branch—say about 3 inches apart; and, after another interval, to go over them again, and select the shoots which are to be left to grow on—say one at or near to the bottom of the shoot, and the other at the extremity. By following this principle out with each shoot, there will always be a sufficient supply of bearing wood kept up to furnish the tree. The remainder of the young shoots must then be stopped at a point which will leave at least three well-developed leaves. If the tree is very vigorous four may be left, because it is probable that the two extreme buds will break again, and after a time these must be again stopped short, and the same process continued all through the summer and autumn, as long as they show any signs of breaking into growth, always being careful to retain the healthy leaves left on at the first pinching-back, because on their being carefully retained depends the formation of fruit-buds for spurs.

In the meantime, the permanent and unstopped shoots will require to be trained-in to the wall as they advance in growth; and, as in healthy and vigorous trees a number of them will always be found breaking into a strong lateral growth at the extremities, it will be necessary towards the end of August to shorten them back to the lowest lateral, which must then be trained on as a leader. In older trees which have become partially exhausted of the vigour which characterises their youth, this tendency to the production of laterals on the young shoots is very greatly diminished; but, nevertheless, it is a good

state of growth to aim at, both because it is indicative of unabated strength, and, also, because it affords so many more chances of keeping the trees well up to the mark as regards being furnished with fruitful wood. During the remainder of the season attention to nailing-in the permanent shoots and stopping all the late growths is all that will be required as regards the manipulation of the branches.

During the time the above operations are in progress, there are other matters on which their successful application greatly depends, and these must receive careful attention and be carried on simultaneously. The first is the condition of the roots, because upon their being properly encouraged depends that healthy state of growth which enables the operator to calculate upon success. As I am now alluding more particularly to young trees, I will presume that care has been taken to make the borders well, both as regards drainage and a suitable compost, so that for a few years at least, there will be no fear of there being a deficiency of food, and the principal care will be to keep the surface of the soil loosened so as to obtain the full benefit of the sun's rays. The surface may also be slightly mulched in very hot and dry weather for the retention of moisture. At the same time, in very dry weather merely mulching will not be sufficient, for as the Peach requires copious supplies of water, the necessary quantity should be furnished whenever there is reason to apprehend a deficiency. Also, as saline matter appears to be peculiarly agreeable to the Peach, I always throw in a few handfuls of salt in proportion to the quantity of water.

With this attention to root-moisture, must also be coupled that of keeping down the ravages of the insect tribe, which often interfere very much with the healthy development of the foliage. For this purpose there is nothing so effectual as frequent applications of soft water from a garden engine, or one of the improved hydropulps, which throw a continuous stream. If this is attended to frequently it will act as an entire preventive; but if not, and the insects do obtain the mastery, pure water will scarcely suffice, and some of the many applications which are recommended for the purpose may be used. I prefer tobacco, or a weak solution of Gishurst compound, but none of them must be left on very long without being washed off again by syringing with clean water, because I am convinced that whatever is sufficiently strong to kill insects, will also to a certain extent injure the young foliage, as well as interfere with the action of the stomates on that which is further developed; therefore, I say, Do not let any noxious mixtures remain too long on the foliage, and by all means try whether the necessity for using them cannot be avoided by a constant attention to syringing with pure water. Prevention in the long run is less troublesome than cure, and far more satisfactory in its results.

Redleaf.

JOHN COX.

INARCHING THE FIG TREE TO HASTEN BEARING.

HAVING seen the Castle Kennedy Fig, now being sent out by Messrs. Lawson & Sons, of Edinburgh and London, I would advise every Fig-grower to obtain it, for I consider it a very great acquisition; and knowing how anxious every fruit-grower is to see the first production of any new or highly esteemed fruit, I will direct attention to a method which I once adopted in order to hasten bearing, not that there is anything new in it, but as a means of saving time.

I had received cuttings of a celebrated large Fig from Lord Digby, and in the following season I elevated one of the small pot plants upon a bracket of

wood, so as to bring it in contact with a similar branch of a large and well-established Brown Ischia Fig tree, which I had in a house, and I then inarched the young tree upon the branch of the old one. I should mention that I allowed the old tree to be nearly in leaf before I operated. I allowed the young plant to remain till well united to the tree on which it was inarched, and when its wood began to get firm, I severed it below the point of union with the old tree. I had several fruit in the following season, and the variety inarched on the established tree has grown freely and fruited well every year since.

Dalmeny Park.

WILLIAM MELVILLE.

A HOMILY ON GLASS STRUCTURES.

THERE are few subjects connected with horticulture that require at the present day a larger amount of careful study on the part of the practical gardener than the erection, ventilation, and heating of garden structures for the cultivation of plants, fruit, and vegetables. Whilst legislation has of late years tended to lower the price of the materials of which these houses are constructed, mechanical science has also been brought to bear very successfully upon their design and mode of heating, and their possession has therefore been brought within the reach of persons of moderate means; and, besides, the peculiar variability of our climate at all periods of the year has rendered it absolutely necessary that every well-appointed garden should be supplied with structures of this class. With their aid the gardener is enabled to surmount all difficulties as to time, place, or climate, and to produce under ordinary circumstances in abundance the most choice productions, either to delight the eye or the palate.

Without, however, pursuing these preliminary considerations further, we will first glance at the principles on which houses for horticultural purposes should be constructed. Here it may be remarked that, looking at the general character of the houses that have come under my notice, there does not seem to be any great partiality shown for one description of design in preference to another; and it is very generally found that the houses have been built to accommodate themselves to situations, instead of the latter having been accommodated to the former.

Whether it be for stoves, greenhouses, vineries or orchard-houses, the span roof, and lean-to will be found equally suitable, if both be supplied with sufficient heating power where that is required; but if a handsome and ornamental structure is wanted, a span roof is preferable for this object. This kind of house is also undoubtedly the best adapted for the growth of handsome and well-formed specimen plants; and few objects attract the eye and senses so forcibly as a well managed span-roofed vinery with trained fruit trees on each side of the walks, the whole being laden with rich, fragrant, and luscious fruit.

It is not now my intention to discuss the relative merits of the curved or plain-slope system; it is enough to know that in all modern erections the old-fashioned close bars and sliding sashes are entirely ignored—that rafters few and far between, with the intermediate spaces well glazed with good clear glass, so as to admit all the light possible, are now the rule; the only drawback to this improvement, however, being that when a square of glass is broken, as it will be sometimes, it is a large instead of a small one, and the cost to replace it is necessarily greater. The best mode of preventing such accidents would be, if possible, to make the glass less brittle; but pending such an improvement in its manufacture, we must content ourselves with being careful to break as little as possible.

Leaving the subject of construction, I will now just glance at that of ventilation, the proper arrangement for which is of the first importance in the construction of houses. The great objects of ventilation are, first, a pure and healthy atmosphere, and, secondly, an equable temperature. To secure these objects there seems to be no plan so suitable as that at present most generally in use, and which is also most in accordance with our knowledge of atmospheric action; and that consists in providing for the admission of external air at the lower part of the house, and for its escape at the upper part after it has done its work, and has supplied to vegetable life those great requisites that pure air alone can give. In all correct modes of ventilation the possibility of a continuous draught will be avoided, and if the proportion of top air given is about one-fourth of that at the bottom there is no doubt that this object will be perfectly secured. It is not possible to lay down any rule of ventilation that will suit all descriptions of plants and fruits alike, for all gardeners know that whilst some plants will exist and be healthy in a freely ventilated and dry atmosphere, others require a humid and confined one; but in every case the practical knowledge of the gardener will prove his safest and surest guide. The application to bottom ventilation of the crank principle which admits of a simultaneous and instant command over the amount of air, is a great improvement; and when this system is applied to houses both at top and bottom, it seems to be as nearly as possible the most perfect mode of ventilating glass structures.

With regard to modes of heating, it does not appear necessary to discuss any other than that most generally adopted, in which hot water is made the medium of conveying heat. Brick flues have done good service, but are going out of use. Hot water will perform whatever is required of it, provided only there be plenty of boiler power and sufficient piping for its free circulation. The quantity of piping necessary for heating houses must depend on their size, and the purposes they are intended to serve. Forcing-houses and stoves necessarily require a greater proportion of heating power than greenhouses, or those intended for plants of a half-hardy character; but I think I shall not be far wrong if I put the quantity of four-inch piping necessary to heat a thousand cubic feet of air in an ordinary greenhouse at about 60 feet; but to heat the same quantity in a stove or forcing-house not less than 150 feet would be required.

With regard to the relative merits of the various kinds of boilers now in use, I could hardly express any decided opinion. The most important features of any boiler are cheapness, durability, great heating power, and the least possible consumption of fuel to produce the greatest effect. The question of setting boilers in brickwork or not may also be left open; still my predilections at present are in favour of a boiler being permanently set, encasing it with a considerable body of brickwork, for I believe that by this means the rapid loss of heat that otherwise takes place when the fire becomes low is arrested, and that the warmth is retained for a considerably longer period.

Maybush, Shirley, Southampton.

ALEXANDER DEAN.

PENTSTEMONS.

THESE are among the most showy and charming of herbaceous plants, and well deserve a place in every collection. Some kinds are truly herbaceous, dying down to the ground annually; whilst others are more or less shrubby. They thrive and flourish well in any good garden soil, with a little peat or leaf soil mixed with it. Some of the kinds are well adapted for ribbon-borders, and all for mixed borders.

The strictly herbaceous kinds are easily increased by dividing the roots ; but the shrubby kinds are best propagated by cuttings, taken off yearly in summer and put into sandy soil under hand-glasses in a shady situation. When rooted they should be potted off singly into small pots, and should be well established and hardened before winter. As soon as they begin to grow after having been potted off, they should be set out in some open place where they will have free exposure ; they should be watered when necessary, and the shoots should be kept regularly stopped. By this treatment they will be good plants before the autumn. On the approach of frost they should be placed in a cold frame or pit, where they must be kept tolerably dry and free from damp. They should be fully exposed all day in fine weather. The lights should always be kept on during the night, and these in ordinary weather will be sufficient protection to the plants ; but in severe frosts the additional shelter of mats should be afforded. The plants may be either shifted in March into larger pots, by which means they will be very strong for planting-out in the beginning of May, or they may remain in the same pots until the end of April or beginning of May, when they should be planted-out in the open border. They will, in general, begin to come into flower about the end of June.

Pentstemons seed very freely, and plants are easily raised from seed. Many fine varieties have been thus obtained of late years. The seeds should be sown in pans in March and put into a little heat. As soon as the seedlings are large enough to handle, they should be pricked out into pans about an inch apart ; they should be kept rather close until they begin to grow afresh, when air should be admitted freely. About the middle of May they should be planted-out into beds at about a foot or 15 inches apart. When they flower the best should be marked for propagating by cuttings, and at the end of the season the inferior ones, if not wanted for shrubbery borders, should be thrown away.

Most of the varieties are so good that it is difficult to give a selection without omitting some equally good. The following may be depended on :—

Adolphe Weick, bright coloured ; the best of its class.	Joan of Arc, fine deep carmine ; throat veined purple.
Adrienne Boppi, very pale pink.	Jules Thierry, very deep scarlet ; fine.
Alphonse Karr, maroon ; white throat.	Lord Clyde, bright crimson red.
Charles Klein, carmine red ; white throat, striped.	Louis Van Houtte, deep carmine ; white throat.
Compactum nanum, deep crimson ; dwarf, for bedding.	Madame Thibaut, best crimson ; dwarf and free.
Dr. Hogg, scarlet ; white throat ; fine.	Marie Marguerite, white, tipped with rose.
George Bruant, pure white, margined lilac.	Modèle, bright lilac.
Ida, bright rose.	Raphael, dark violet.
John Salter, white tube ; lilac sepal, pencilled.	Scarlet Gem, scarlet ; fine.
	Victor Hugo, bright carmine.
	William Bull, violet.

M. S.

BEDDING PELARGONIUMS.

THE busy season for “ bedding-out ” has again come round. Ere the close of the present month (May), the greater part of the many thousands of bedding plants, that were during the winter months crammed into every available nook and corner of our glass structures, will have been transferred to the flower garden. A few years ago, if the beds were tolerably well filled up by the early part of July it was thought to be pretty good management even in favourable seasons ; but in bad and unfavourable years it was often a difficult matter to get good masses of bloom before the end of July, owing to the uncertainty attending the growth of the kind of plants then used for bedding-purposes. Now, however, the case is very different. The great number of varieties of bedding Pelargoniums make us independent of seasons, and furnish materials

for immediate effect. As Mr. W. Paul remarks in the January Number of the *FLORIST AND POMOLOGIST* (page 6), "The certainty with which they accomplish the work allotted to them, their freedom and continuity of bloom, the gorgeous masses of colour which they produce, and their comparative independence of the changes of the weather, place them without rivals in their own peculiar walk."

Most of the stronger-growing kinds of the plain and zonate-leaved *Pelargoniums*, which are grown principally for their flowers, require different treatment from the weaker-growing kinds of the variegated sections. Nothing takes so much from the effect of flower gardens as to see some beds badly filled, whilst others near by are, as may sometimes be seen, masses of luxuriant growth. It occurs to me that a few remarks on the subject may not be altogether unacceptable at the present season to the younger portion of the readers of this periodical.

The last season was a remarkable one, the like of which may not again occur for some years. It was, on the whole, highly favourable for bedding *Pelargoniums*. The long continuance of fine, warm, sunshiny weather was all that could be desired for *Pelargoniums*, particularly those of the plain and zonate-leaved sections. The coming season may be very different. If dull, wet weather should prevail for any length of time, the stronger-growing kinds of the plain and zonate-leaved sections will run too much into growth and foliage, especially if the beds are highly enriched—an error into which the inexperienced sometimes fall. The method I adopt with them is simply this: The beds, which contain ordinary garden soil of a sandy nature, are dug from 12 to 14 inches deep before planting. I then have some leaf soil or some very rotten dung spread over the surface. When the plants are being planted this is put into the holes around the balls with the fingers and trowel. The plants make fresh roots in this immediately, and soon start into a nice healthy growth. Later in the season, as they strike deeper, the roots get into the poor soil, and a profusion of flowers instead of rank growth is the result. With good strong plants of the very vigorous kinds it is a good plan to plunge them in the pots, taking care that there is not a great depth of soil at bottom for the roots to strike into. When masses of flowers are the principal object aimed at, everything tending to late growth should be guarded against. Young plants, when put into highly enriched soil, run too much into growth towards the end of the season, even in fine weather.

Nearly the whole of the variegated varieties require to be planted in beds of highly-enriched soil of good depth. When I say highly-enriched soil, I do not mean that the bed should contain a mass of strong unfermented dung—far from it; the soil should consist of one-half good turfy loam, one-fourth part peat or leaf soil, and one-fourth part very rotten manure, the whole well mixed up together with a good sprinkling of river sand. The bottom of the beds should be thoroughly drained, and the depth of the above compost should be from 16 to 20 inches. If the plants are well rooted—and this is a very material point to be attended to—they may be planted-out towards the end of the month. If the weather be dry after they are planted, they will require watering a little, until they begin to root freely into the fresh soil. After this they will take care of themselves if left alone.

There were numerous complaints last season about variegated *Pelargoniums* not growing freely, particularly some of the golden-leaved varieties. I believe the greater part of the failures arose through planting badly-rooted plants in shallow beds of poor soil. In visiting a place last season, where I first saw *Sunset* and *Mrs. Pollock* after they were let out, I was very much surprised not to find *Sunset* bedded-out, especially as *Mrs. Pollock* was very largely

used. On inquiring the cause I was informed that Sunset was a bad grower and difficult to increase. I need hardly say my own experience of Sunset is the very opposite. I merely mention this case to show how often things are condemned for want of a little common fair play. There was no doubt in my mind that coddling and too much nursing had killed beautiful Sunset. Had the plants been put into beds of the compost recommended above, they would have grown and furnished abundance of cuttings, which strike as freely as common scarlets, if put into pots of very sandy soil and plunged in any warm south border from the middle of July to the middle of August.

Cloth of Gold also grows nearly as freely as Tom Thumb when planted in good soil; but as, when it grows very freely, and especially towards the end of the season, it loses much of its golden colour, it is advisable not to plant it in too rich soil. The best plan of managing is to get good large plants for planting, and then to put them in pretty closely in beds of ordinary soil. They will not grow very freely in such beds, but will retain their fine golden colour all through the season. Beginners will often fall into mistakes which men of practical experience never commit. Attention to the foregoing very brief details at the present planting season will, I feel sure, produce very satisfactory results.

Stourton.

M. SAUL.

THE INFLUENCE OF THE SUN ON PLANTS.

My object at present is to notice the effects of the sun on plants; for without the sun's rays all the gardener's art, knowledge, and care must be fruitless. Perhaps for me or any one else to try to explain how plants absorb the rays of light may be equally so. However, I may hazard an opinion that plants are affected by sunbeams through the pores of the leaves, and perhaps those of the tender shoots; and also that these beams are stored up, both in the roots and branches, and perform the chief work in the growth of these. Little do some think that the inflammable part of the fire is only sunbeams let loose, which were collected or imbibed by the trees of the antediluvian forests—so wisely have all things been ordered for the benefit of man.

Neither animals nor plants can live long healthy without the influence of the sun. I am aware of what has been said respecting animals having been found in the dark depths of the sea, and likewise of some kinds of fishes without eyes, in dark waters in caverns. The existence of these seems at variance with the maxim that the sun gives "life to all living," for they may be healthy and may enjoy life, though always in darkness, whereas other animals are not so. Kean, the American voyager, mentions that his dogs became blind during the long dark winter in the arctic regions; but that might be the effects of disease, caused by the absence of the influence of the sun, for blind animals may be said to be always in darkness, yet have good health while surrounded with light and air. The same may in some measure be said of many kinds of tender plants in winter. Some plants, of course, are adapted to grow in the shade, while others require the full sun. The diversity of their habits may be owing to the difference of the pores of the leaves, which exhale matters not required by the plant, and inhale nutriment, more or less, as they are affected by the light. Those acquainted with the early forcing of flowers and fruit know full well that a few hours of sunshine are worth more than as many days of dull weather, especially to Melons and Cucumbers: therefore I think the too common plan of shading them is wrong, except to a small extent when their roots have been disturbed, or when the plants are weak in consequence of the absence of sunshine. In both cases, the sap-vessels in the leaves do not receive a sufficient supply of juices from the roots, and it is hot sunshine that burns or scorches

them. This may have led to the common plan of shading both Melons and Cucumbers during summer ; but by long experience I have found that they do best without it, and so do many other kinds of plants kept under glass. In fact glass, however clear, tends in some measure to shade or deprive plants of their proper nutriment through the agency of sunbeams.

Cossey Park.

J. WIGHTON.

SOMETHING ABOUT STOCKS.

My neighbour Dalton is enthusiastic about Stocks. They are his hobby, and he rides it hard. He winters his Brompton and Queen Stocks better than any one else in our neighbourhood ; and when those of others have been killed by the wet, or whatever else it is that plays such havoc among them, he points to his own plants, healthy and luxuriant, and chuckles over his better fortune.

I think the great secret of his success lies in the observance of two rules ; the first is the provision of good drainage for the border on which he plants them, for he contends that too much wet at the roots is the cause of half the deaths in the neighbourhood (he alludes to the deaths of Stocks, good reader) ; and, secondly, when he transplants from his seed-bed to the border on which they are to flower, he is careful in the extreme (I think), not to disturb the roots in the slightest degree. In fact, in this last lies, in his opinion, the secret of his success. You would never argue him out of it, and of course it is useless to try. I cannot succeed as he does, and I tried to be as careful as he is, and I gave up the attempt in despair, thinking that nature had not intended me for the special work of growing winter Stocks. His Brompton and Queen Stocks just now look as satisfactory as the most fastidious could desire to see them.

Dalton does'nt believe in " bedding stuff," and I confess when I look on his charming Stocks during the summer months, my faith in some of the aspects of our modern systems of bedding-out becomes a little shaken. His large-flowering German Ten Weeks, his Giant Ten Weeks, his Intermediate, his Giant Pyramidal, and his Brompton Stocks, to him far transcend my Lobelias, Geraniums, Calceolarias, Cerastiums, &c., and he goes further, and thinks a spike from one of his scarlet Pyramidal Stocks much finer and much more attractive than the choicest bright colours of my pet Gladioli, and he carries the votes of the greater part of the neighbourhood. I pity his want of taste ; he, my infatuation. I give a good round sum for some of my choicer kinds of Gladioli ; his most choice Stocks cost him but little, as he saves his own seed. I get no surplus bulbs to dispose of ; he has really extensive transactions with his Stock seeds, and gets a good price indeed for them.

Just now he is great in Intermediates, both scarlet and white, the latter being, however, a rather taller grower. His scarlet flowers are the envy of our neighbourhood, and would be greedily sought after in Covent Garden Market. He sows his seeds in the end of August and early in September, and winters his plants in a cold frame when potted. He is careful to have rich, but very fresh soil, and he is a great advocate for the use of a fine yellow loam that prevails in his neighbourhood. He has an original plan of his own in his method of cultivation, and I think many Stock-growers would be disposed to question the value of his system on theoretical grounds ; but practically it produces the most desirable results. While there is always noticeable among his flowers a very large per-centage of double flowers, the single ones are carefully tended for the sake of the rich harvest they bring him. The seeds when ready for sale are always large and plump, and seem suggestive of the vigorous plants they always produce.

Of the other varieties of Stocks he produces so finely, I am most wedded to the Pyramidal section, especially the two colours—violet and scarlet. The former is indeed violet, not the washy lilac shade one often sees; his colour is a deep violet purple, with a distinct shade of bright blue. Any pale-coloured plants are withdrawn, and consigned to the refuse heap as soon as they betray their presence. They are grown in a moderately rich, but good, holding soil, and sometimes are treated to a little manure water. In dry weather they are copiously watered, and as this is invariably an inevitable necessity, they are planted in slightly sunken drills in order that the water may not be wasted.

I have called attention to this old-fashioned, yet thoroughly good and domestic flower, because it has receded into oblivion as far as the horticultural press is concerned. New things, that too often mean worthless things, crowd them out, or else eccentric lucubrations which move one to pity most heartily both writer and readers. I both wish and try to move with the times, but I cannot keep pace with a great deal that passes current as modern horticulture. I must, therefore, lag behind; but I press closely to my heart many of the old-fashioned flowers that had a charm for me in my youth, and have not robbed me of it in my age, and foremost among these stands that thoroughly English and popular flower that heads this paper.

ADAM.

DACTYLIS GLOMERATA VARIEGATA.

I ANTICIPATE that this elegant liliputian Grass will be extensively employed for edging-purposes when more plentiful. Whether in beds or ribbon-borders it cannot fail to be admired, being graceful in the extreme; moreover, it is of easy culture, and will succeed out of doors without protection in ordinary seasons. The least portion of the roots will grow readily at any season. I pot separately in pots of the smallest size, using ordinary soil, and the pieces strike at once, soon filling the pots with roots. I then divide again until I secure a sufficient stock.

This Grass, I believe, will be at home in the moist districts of Ireland and Scotland, where it will luxuriate in a far greater degree than we are in the habit of seeing it in the south.

Wrotham Park, Barnet.

JOHN EDLINGTON.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.

THOSE of our London friends who have occasion to visit South Kensington will have observed how rapidly is being raised the building, or rather tent, in which the Exhibition is to be held. A "monster tent," indeed, it is to be; it must be so, when it is remembered that space is computed for the circulation of 15,000 visitors, independent of mounds, and banks, and borders of plants, &c., that will be arranged within the tent. All other flower shows that have preceded it in Great Britain dwindle into insignificance when compared with the huge proportions of this one. The Executive have their hands pretty well full by this time, and as the time for holding the Exhibition draws closer, the tax on their time and energies will be considerably increased.

The engagements of the week may be briefly summed up thus:—Tuesday, the 22nd, Opening Day of the Exhibition and grand Banquet at the Guildhall, at which the Right Hon. The Lord Mayor of London will preside; and which will be served to a very distinguished company on a scale of great magnifi-

cence. The guests will be limited to six hundred, in order that the comfort of each shall be insured. On Wednesday morning the Botanical Congress will open in the Raphael Cartoon-room, at South Kensington Museum, under the presidency of that distinguished European botanist, M. Alphonse De Candolle, of Geneva. A large number of foreign botanists and horticulturists will be present, and a number of papers have already been furnished to the Congress Secretary. On the evening of Wednesday a *Conversazione* will be held at the South Kensington Museum, which, together with the Raphael Cartoon-room, has been liberally and kindly placed at the disposal of the Executive Committee by Her Majesty's Government. The suitability of the place is so apparent that it needs no commendation, and the numberless articles of interest stored there, together with the picture-galleries, &c., will be valuable auxiliaries to such a gathering.

On Thursday, the 24th, a Horticultural Dinner on a very extensive scale will take place at St. Martin's Hall. This, though not promoted by the Executive Committee of the International Horticultural Exhibition, has their entire sanction, and is regarded by them as a valuable adjunct to their engagements. This dinner is promoted in order to give an opportunity for those of the nurserymen, gardeners, and amateurs from the provinces and in the metropolis to meet together at the "festive board." The movement promises to be a great success, is being extensively patronised, and will be carried out in a very spirited manner. The Committee of Management will shortly publish their programme.

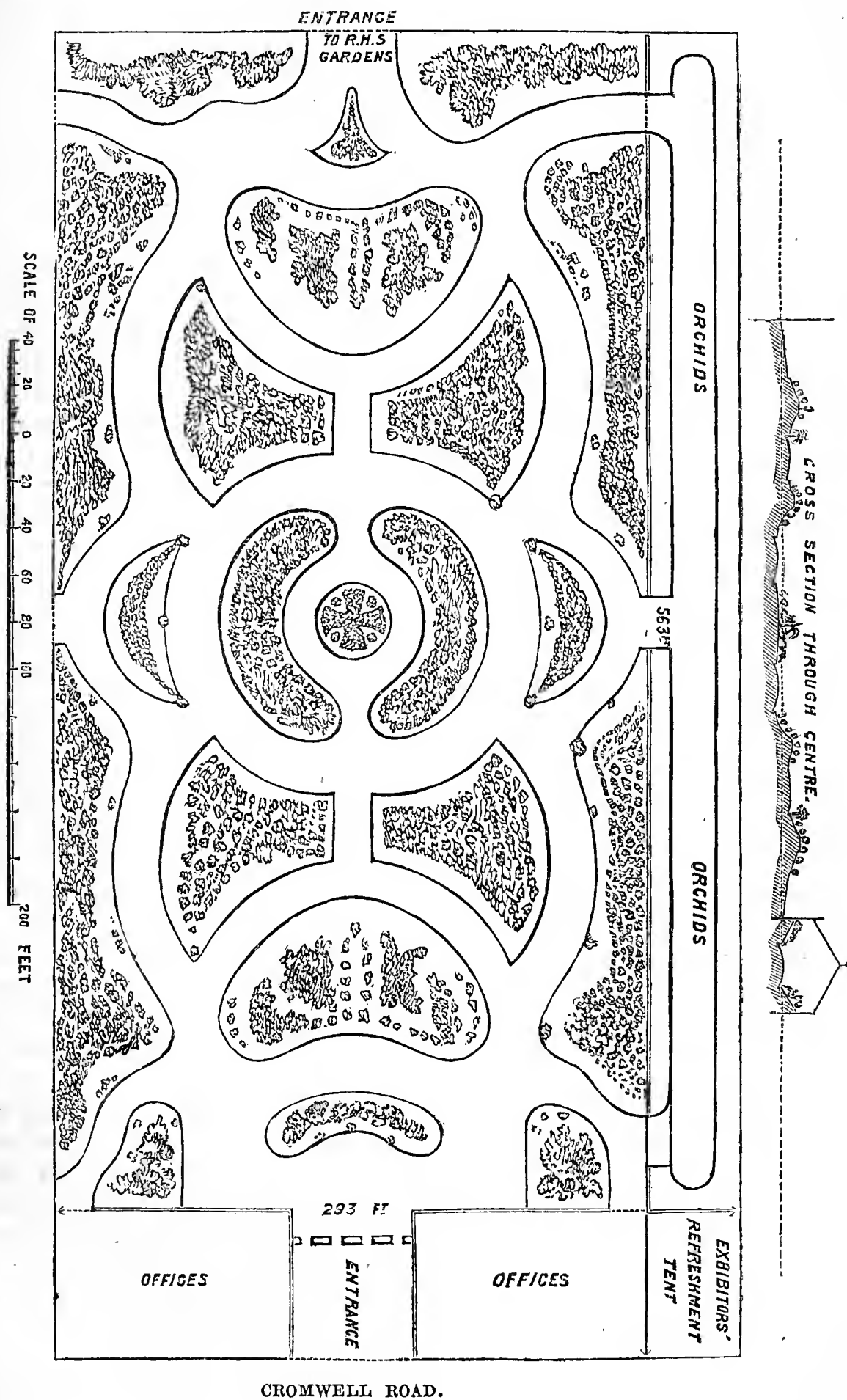
On Friday morning there will be another Sitting of Congress, and probably it will be continued on Saturday. The *Conversazione* which was to have been held on the evening of Friday has been definitively abandoned, owing to the multiplicity of engagements already and in course of being contracted.

Besides the special invitations that have been issued to distinguished foreigners allied to botany and horticulture, a great number of other invitations have been issued, a large proportion of which have been accepted. Delegates will also be present from several of the continental Governments, some of which have already named the gentlemen who will represent them.

That the weather will be propitious is the earnest desire of all who look forward with interest to this great meeting, and also that the movement should be a pecuniary success is not the less earnestly hoped for.

On the opposite page is a ground plan and cross-section of the Exhibition tent, which is 30 feet in height, 563 feet in length, and 293 feet in width, thus covering a superficies of more than $3\frac{3}{4}$ acres. Of this area about 55,000 square feet will be devoted to plants arranged on turf-banks and mounds, and 60,000 square feet for promenades, which, as stated above, will allow space for 15,000 visitors at one time. For the Orchids and other tender plants a division 500 feet in length and 40 in width has been set apart, and every precaution has been taken not only to insure a sufficiently high temperature whatever the weather may prove, but also to secure that which is not less essential to their safety, a due amount of ventilation. The beautiful design, according to which the ground has been laid out, is due to Mr. Gibson, the Superintendent of Battersea Park, assisted by his son, Mr. John Gibson, jun., and the whole of the works have been carried out under his active supervision, and this gratuitously given, and pursued with that energy and perseverance which he brings to bear on all which he undertakes. Viewed merely in outline, the graceful curves of the design have an excellent effect; what, then, will this be when those mounds and valleys are covered with the most choice of all that is beautiful in flower, and leaf, and fruit, gathered together not only from every corner of our own country, but from all parts of Europe as well?

GROUND PLAN AND CROSS SECTION OF THE INTERNATIONAL
HORTICULTURAL EXHIBITION TENT.



JOTTINGS AT EXHIBITIONS.

At a recent meeting of the Floral Committee some very handsome varieties of *Sparaxis* were produced by Messrs. Veitch & Sons, of Chelsea. They had been received by them from the Continent under the name of *Ixia* sp., and had been simply grown in a cold frame. They are of great beauty, and should they become distributed, will be great favourites, as they deserve to be. At the same meeting was shown, by Mr. Watson, of St. Albans, one of the tricoloured varieties of variegated *Geraniums*, named Miss Watson, the leaves being green, deeply edged with yellow, and having a striking zone of crimson. It appeared a very desirable variety.

At a recent Saturday Show a collection of Apples and Pears in a wonderful state of preservation, was sent by Mr. Rivers, of Sawbridgeworth. As showing they are "good keepers" at least, a list of the varieties may be advantageously appended. Apples: Cockle Pippin, Betty Geeson, Forge, Belle d'Angers, Lamb Abbey Pearmain, Mela Carla, Rhode Island Greening, Baxter's Pearmain, Reinette Diel, Newtown Pippin, Dominiska, and Pearson's Plate. Of Pears: Colmar Van Mons, Morel, Madame Millet, Easter Beurré, Beurré Brétonneau, Beurré Perreau, Bellissime d'Hiver, and Bezi Mai.

On the third Saturday in April there were exhibited at South Kensington, by Mr. William Miller, of Combe Abbey Gardens, Coventry, four bunches of Lady Downe's Grape, which were cut from the Vine on the 9th of April, having been hanging ripe since the 1st of September last, thus being preserved for a space of nearly eight months. Many of the berries were plump and full, and the colour good. With them were also shown some bunches of Foster's White Seedling from pot-grown plants, which had fruited in a Pine-stove in a continuous high temperature. The Vines were placed in the stove about the 1st of December, having thus fruited in a little over four months.

R. D.

LIFTING FRUIT TREES.

ALTHOUGH the practice of removing fruit trees with the view of limiting growth and inducing fruitfulness is not new, having been advocated by Mr. Rivers for many years past, and extensively adopted, yet the following system detailed by Mr. George Lee, of Clevedon, near Bristol, in the last Part of the "Journal of the Royal Horticultural Society," differs materially from that recommended by Mr. Rivers. The account of it given in that publication is of considerable interest as showing how even large fruit trees may be removed with safety and advantage, and we therefore extract the particulars, with but slight abridgement, merely adding that Mr. Lee has frequently given proofs of his success as a cultivator, in the fine samples of fruits which he has more than once exhibited at the Royal Horticultural Society's Shows.

"The soil is cleared off in a circle round the tree, 5, 6, 8, or more feet in diameter (according to the height or size of the tree), down to the roots; a trench is then dug sufficiently deep, three-fourths or more round, leaving only about two or three roots on one side undisturbed. The trench is dug round with a spade to cut off any roots which may have gone beyond, and the soil is worked from between the roots into the trench with a fork (this should be done with some care not to bruise or cripple the roots), and thrown out of the trench with a spade as it becomes full. In this way you get with comparative ease at any roots which may have gone perpendicularly, and are able to dig sufficiently deep to get them up long enough to turn horizontally, which is of great importance,

for if these roots are cut short off they are almost certain except they are very large ones, to strike perpendicularly again. The soil thus cleared out and the roots all free (except those which have been left undisturbed), the tree is turned over on the side on which the roots are left.

“The next time they are lifted, the roots thus left are cut off, and the tree is turned the opposite way. Thus, if the roots are left on the west side this time, they will be left on the east next, and so on alternately.

“I find on lifting a large tree, which has not been previously lifted, that some regard should be paid to the prevailing strong winds. Thus if the prevailing strong winds are from the west, the roots should be left the first time of lifting on the west side; but it does not much matter if we begin with small trees, supposing the trees are in single rows, running north and south; the best way then would be to turn them east and west. But suppose there are double, or treble, or more rows, and they run north and south, then it will be necessary to turn them at some other angle, so that the tops and branches may be as free as possible from coming in contact with other trees, say N.E. or S.W.

“The greater part of my trees, which have been lifted several times, would, if taken entirely out of the ground, stand on the surface without any support, and it would take quite a strong breeze to upset them, and, I think, the labour is amply compensated by the superior crop of fruit, both as to quality and quantity. . Perhaps I ought to speak more strongly than this, for I consider the crop pays several times over the expenses. But for my experience in lifting (for which I am indebted to Mr. Rivers; for although my method differs materially from his, yet it has been suggested by it, and but for his I should never have thought of mine)—my trees, more than 2000 in number, would have been almost valueless, from my having to clear off my present garden for building-purposes; whereas now I might sell many of them for from 10s. to 40s. each.

“I will now first give the dimensions of a few trees of my own working, which have been practised upon from their second or third year.

“I begin early in the season and continue till the spring, as I lift many hundreds every season; but I begin with the ripest first, generally Cherries, always choosing the mildest, but especially moderately dry weather (I find the trees suffer if lifted in very wet weather), and in filling-in, I never tread down the soil, and rarely have one blow over, not more than one in eighty or ninety.

“I begin on very young trees, say the second year after planting, and I generally plant maiden or sometimes two-year-old trees; and if we begin so early there are no large roots taking a perpendicular direction. Great care is taken in pruning the roots while the tree is on its side and laying them carefully in, keeping them as directly out from the tree as possible, so as eventually to form a circle, and the soil is carefully worked over and levelled with a fork. The depth of the hole must be regulated as well as the width by the size or height of the tree; but none of the roots, even of large trees, are above 15 or 16 inches deep, and of those which have been commenced with young (although they may now be large) not more than about 10 or 12 inches. They do not require any support in any one season to prevent their getting blown over—a circumstance which I consider of great importance. If trees are begun with when young and lifted carefully, they soon have an abundance of roots, and their lifting is very little check to them, except in making wood, and even this can be regulated at pleasure.

“In the following list of trees which I have lifted successfully, it will be observed that, though the process was commenced when they were very young, their growth was not much hindered. The height is given from the surface of the soil. The spread is taken at about 3 or 4 feet from the ground. The age

is reckoned from the time of working the stocks, which are what are termed free stocks, being generally three years old at the time of working.

"I perhaps ought to say that I find Quince and Paradise stocks lift quite as well as Crab or Pear, but it is not so with *Cerasus mahaleb*. This I do not find lift at all well in any soil. After the trees get large, every bruise or scratch in the roots becomes attacked by a fungus, which always produces bad health and frequently death. The following are—

"PYRAMID PEARS :—Doyenné d'Eté, age ten years, height 19 feet, spread 8 feet, diameter of stem near the ground 6 inches. Broom Park, age nine years, height 15 feet, spread 9 feet, diameter of stem 6 inches. Urbaniste, age nine years, height 16 feet, spread 7 feet, diameter of stem 4 inches. Doyenné Robin, age nine years, height 17 feet, spread 6 feet, diameter 4 inches. Soldat d'Esperen, age nine years, height 13 feet, spread 5 feet, diameter 4 inches. Beurré Diel, age ten years, height 14 feet, spread 8 feet, diameter 5 inches. Doyenné Boussoch, age eight years, height 13 feet, spread 7 feet, diameter $5\frac{1}{2}$ inches.

"APPLES :—Gravenstein, age nine years, height 13 feet, spread 6 feet, diameter 6 inches. Golden Pearmain, age eight years, height 13 feet, spread 6 feet, diameter 4 inches. Mannington's Pearmain, age eight years, height 11 feet, spread 6 feet, diameter 4 inches. Irish Peach, age nine years, height 12 feet, spread 7 feet, diameter 4 inches. Rymer, age nine years, height 11 feet, spread 5 feet, diameter $3\frac{3}{4}$ inches. Sturmer Pippin, age nine years, height 12 feet, spread 5 feet, diameter $3\frac{1}{2}$ inches. Waltham Abbey Seedling, age nine years, height 11 feet, spread 7 feet, diameter 5 inches. Keswick Codlin, age nine years, height 10 feet, spread 6 feet, diameter 4 inches.

"I will now give a list of a few trees removed last season to a new garden about three miles distant, *and doing well*.

"Jargonelle, age ten years, height 17 feet, spread 10 feet, diameter 6 inches. Gansel's Bergamot, age ten years, height 18 feet, spread 8 feet, diameter 5 inches. Urbaniste, age nine years, height 14 feet, spread 9 feet, diameter $4\frac{1}{2}$ inches. Thompson's, age ten years, height 15 feet, spread 5 feet, diameter 4 inches. Passans de Portugal, age ten years, height 16 feet, spread 7 feet, diameter $4\frac{1}{2}$ inches. Louise Bonne of Jersey, age ten years, height 16 feet, spread 6 feet, diameter $5\frac{1}{2}$ inches. Shobden Court, age ten years, height 17 feet, spread 7 feet, diameter 5 inches. Gravenstein, age nine years, height 12 feet, spread 8 feet, diameter 6 inches. All these have been very much pruned so as to bring them into shape.

"The other Apples removed last season cannot be strictly called pyramids, they are more properly bush trees; many varieties of Apples I find rather difficult to keep leaders to, so as to form pyramids. I will, lastly, give a few lifted last season, to be relifted this, for removal next to the new garden. These are some which have not been regularly lifted, and therefore require two liftings to insure their doing really well after removal; they are all standards, with stems from 4 to 6 feet. They were not commenced with young. Orange Bergamot, age twenty-five years, height from ground 25 feet, spread 20 feet, diameter 1 foot. Catillac, age fifteen years, height from ground 25 feet, spread 15 feet, diameter $10\frac{1}{2}$ inches. Glou Morceau, age eighteen years, height from ground 23 feet, spread 13 feet, diameter 10 inches. Broom Park, age sixteen years, height from ground 19 feet, spread 14 feet, diameter 9 inches. Knight's Monarch, age sixteen years, height from ground 17 feet, spread 13 feet, diameter 7 inches. Eyewood, age sixteen years, height from ground 23 feet, spread 13 feet, diameter 8 inches; with many others sixteen to eighteen years old with large spreading heads.

"If it is necessary to lift a large tree which has not been previously lifted,

a somewhat wider circle must be taken, and, perhaps, one-third of the roots, or nearly so, be left undisturbed. The turning over will be a little difficult, but not so much so if the soil is cleared some little distance further on that side, so as to allow the roots more space to bend; and as the roots will most likely be grown very irregularly, to keep them properly spread and in their places it will be best to have some strong fork pegs well pointed, inserted with a small iron bar, and afterwards driven firmly in with a wooden mallet. These will not only keep the roots in their places, but will help to secure the tree from blowing over. But, in addition to these, very large trees will require some other support to keep them quite safe. I use long forked poles, about three or four of which are inserted at angles; but, of course, none will be needed on the opposite side to that on which the roots are left. But as these would look very unsightly on a lawn or any conspicuous place, tar ropes may be fastened, say at two-thirds the height of the tree, previously placing a good bandage round it to save it from being wounded. The ropes will, of course, be fastened at angles to sufficiently strong pegs, and by means of such ropes, the trees may be far more easily lowered and raised upright again.

“As I have practised this mode of tree-lifting for many years, and on many hundreds of trees, I can confidently recommend it as a most successful method, and I know that no one will regret giving it a trial if it is done carefully. I, perhaps, ought to say a few more words about Pears on Quinces, Apples on Paradise stocks, and Cherries on *Cerasus mahaleb*. As to their producing fruit earlier, there can be no question. I find many Cherries bear even a much better crop than on the free stock; but, as I said before, they do not lift so well when they become large as they do on the free stocks, and Quince stocks do not do in very sandy soil. I will give the dimensions of a few Pears on Quince stocks. Gratioli of Jersey, age ten years, height 12 feet, spread 5 feet, diameter 3 inches. Conseiller de la Cour, age ten years, height 13 feet, spread 8 feet, diameter $4\frac{1}{2}$ inches. (This is a most handsome tree.) Beurré Hardy, age ten years, height 14 feet, spread 5 feet, diameter $4\frac{1}{2}$ inches. Beurré Bretonneau, age ten years, height 12 feet, spread 5 feet, diameter 4 inches. Pius IX., age ten years, height 12 feet, spread 5 feet, diameter 3 inches. Prince Albert, age ten years, height 13 feet, spread 6 feet, diameter 4 inches. Nouveau Poiteau, age ten years, height 13 feet, spread 6 feet, diameter $3\frac{1}{2}$ inches.

“I find Apples on Paradise stocks bear well; but they are difficult to keep upright if lifted when the trees get large, from the extreme smallness of the roots.

“I will, in conclusion state a few particulars in which my method of tree-lifting differs from Mr. Rivers's, yet not so much in the mode of operation as in the results. Mr. Rivers's plan is intended for small gardens where a large variety may be grown in a small space, mine for those of trees of any dimensions, however large; Mr. Rivers's partly as a source of amusement, mine more as a source of profit; Mr. Rivers's only for the fruit garden, mine may be applied to ornamental trees and shrubs, previous to their removal by waiting two years, and with almost the certainty of success. How much has been written about the removal of large Hollies, and other large trees and shrubs, both as to manner and the particular time, too; and what a cumbrous affair it has been in removing many hundredweights, and sometimes tons of soil in the operation, and then, after all, a frequent risk as to their growing; whereas, in this way, there is no occasion to remove any larger proportion of soil than in the case of a tree or shrub 2 feet high. In this way they are almost certain to grow, at least I have only lost one out of many hundreds, and that was more through carelessness than default in the method.

“What valuable trees are, after many years' growth, found to be in the

wrong place ; what a desire that they should occupy a more conspicuous or a more favourable place ; but what a risk in their removal ! Consequently, they are allowed to remain where they are, rather than run the risk of sacrificing them ; but by treating them as I have mentioned in reference to large trees, not previously lifted, there is great prospect of success.

“ I am a market gardener and very fond of fruit-growing, and, of course, want to get something by it—that is, make it pay, and I find that my attention to lifting, as I have described, answers admirably, both as to quantity and quality. I beg to refer you to *The Journal of Horticulture*, vol. iii., page 635, and the FLORIST AND POMOLOGIST, as also to a few remarks in the ‘ Report of the International Show,’ in *The Journal of Horticulture* ; but both the quantity and quality, by careful attention to thinning, are improved. I often cut two-thirds and sometimes a very much larger proportion.

“ I have not given the sizes of Plums or Cherries ; but they are quite as large in proportion.”

VERBENAS.

THE following selection from a considerable number of varieties grown at Chiswick is given in a late Number of the “ Proceedings ” of the Royal Horticultural Society. The most approved sorts are indicated by an asterisk (*), and the next grade by an obelisk (†):—

Annie * (Cooling).—A variety of novel character. The flowers white, striately margined with carmine after the style of *Striata perfecta*.

Ariosto Improved *.—A fine, showy, and effective mulberry-purple.

Bedding Gem (Wills).—Bright ruby ; free.

Captain Semmes (Wills).—Much like *Lady Binning*, but with a somewhat darker shade around the eye.

Claret Queen * (Wills).—Of free habit, the flowers of a bright velvety claret colour.

Crimson Cushion (Wills).—Very dwarf and desirable in habit, but out of flower when examined.

Danesbury Pet * (Parsons).—A showy variety of dwarf free habit, the flowers of a shaded orange-scarlet, deeper towards the centre, and relieved by a white eye.

Géant des Batailles *.—A good sort, well known as one of the most useful of the crimson group.

General Simpson *.—A good sort, well known as one of the best in its class.

Lady Binning † (Wills).—Free bloomer, and close habit ; flowers crimson, with a straw-coloured eye. Approved as a bedding variety.

Lara * (Wills).—A variety of close habit, with deep pinkish-rose flowers.

Little Pet (Wills).—Too spreading in habit, having a much-cut leaf, and deep rosy flowers.

Maonetti Erecta * (Wills).—A very close and dwarf-growing variety of distinct habit, with cut leaves, and deep rosy-lilac flowers very abundantly produced.

Merry Maid * (Wills).—A large showy carmine rose, having a purple tinge, and producing fine trusses of bloom. It is also a good variety for pot culture.

Mrs. Dobree * (Turner).—A free dwarf-growing variety of excellent habit ; the flowers deep rose, with a tinge of crimson on first opening.

Mrs. Lincoln * (Wills).—A variety of erect dense habit, with deep clear rose-coloured flowers, extremely well adapted for bedding.

Princess Victoria † (Wills).—A new and distinct style of Verbena, very dwarf and close in habit, having cut leaves, and dark rose-coloured flowers.

Rosy Circle † (Wills).—Close-habited and free-flowering, the flowers of a deep purplish rose, with a straw-coloured eye.

Snowball (Turner).—A blush, of very fine shape.

Spark * (Turner).—Flowers crimson, with straw-coloured eye. This comes very near Lady Binning, but is somewhat lighter in colour. Both are useful as bedding sorts.

Velvet Cushion † (Wills).—A free-blooming dwarf, purple rose.

Some other varieties, which were much affected by the hot dry season, were not in a condition to be reported on.

OPEN-AIR CULTURE OF LILIUM GIGANTEUM.

THE hardiness and endurance of this noble Lily are certainly much greater than generally admitted. It has now flowered without protection in several places in this northern division of the kingdom, and, I think, may therefore be classed as a hardy bulb. In one instance a number of seedlings, in consequence of want of room, were turned out in the open ground, and allowed to remain undisturbed; some of these have flowered and ripened seed, thus proving that the climate of Scotland is sufficient from the earliest stage of the plant's growth to do all that is required. We have here a *Lilium giganteum* which was planted in the spring of 1861, and which produced last summer a flower-stem 7 feet 9 inches in height, with eleven flowers upon it. Several pods of seed were also formed.

The strength, vigour, and stately appearance of this Lily in the open air in the earliest stages of its growth are very conspicuous and interesting, and still more so is its rapid growth in the early months of spring. The effect, too, when planted out of doors is much more pleasing than when the plant is grown under glass. This is the second instance of its flowering in Morayshire; the first occurred in the garden of a lady amateur in the cold summer of 1860.

With these facts before us, I think there need be no hesitation in recommending *Lilium giganteum* as a hardy border plant, and if put into a warm sheltered situation there can be little doubt of its succeeding.

Gordon Castle.

J. WEBSTER.

OUR CONTEMPORARIES.

L'HORTICULTEUR FRANÇAIS for February, has for its plate a representation of *Erythrina ornata*, a new variety of Coral Tree, raised by M. Bellanger. It is a shrub not exceeding 2 feet in height, and will even flower when 8 inches high. The racemes are long, and closely set with large dark vermilion flowers, with a reddish crimson keel. This is stated to be a very early-flowering variety, blooming a fortnight or three weeks before the other *Erythrinas*, and continuing in bloom till autumn. Cuttings inserted in March or April frequently flower in the end of July; and it is also said to be a good pot plant, the buds never dropping. *Madame Bellanger* is another dwarf free-flowering variety obtained by the same raiser; the flowers are described as being of a velvety, dark reddish crimson, with a darker keel. The same publication for March contains a plate of *Huernia Thureti*, one of a genus of succulent plants separated from that of *Stapelia*. The plant has numerous branches, generally four-sided, of a lively glaucous green, and bearing flowers on the lower parts.

These are five-lobed, yellow, streaked with carmine, and without that offensive odour which the flowers of many of the *Stapelias* exhale. The flowers are produced abundantly in the end of August and during the following two months. It requires a greenhouse temperature, free loamy soil mixed with leaf mould, and copious waterings during the season of growth.

FLORE DES SERRES (Nos. 179 and 180) contains plates of *Phalænopsis sumatrana*, *P. rosea*, and *Sarmienta repens*, a Gesneraceous plant, a native of Chili, where it is found climbing on the bark of trees and on moss-covered rocks. The flowers are scarlet, resembling those of *Mitraria coccinea*, but of less size, and borne singly or in pairs on long peduncles. Other plates are representations of *Ipomœa Horsfalliæ*, *Cypripedium Pearcei*, referred by Professor Reichenbach to *Selenipedium*; and *Hydrangea japonica rosalba*, with what are familiarly known as the flowers in two states, snow white as produced in winter, or white suffused with rose, and shaded with bright red, as produced in summer. *Cratægus oxyacantha Gumpperi bicolor*, with white flowers broadly edged with rose, is the subject of the next plate. It is, apparently, a very ornamental variety of the Hawthorn, and is stated to be of German origin. *Odonoglossum Bluntii* follows. This is stated by Mr. Bateman to be not specifically distinct from *O. Alexandræ*, whilst Professor Reichenbach maintains the contrary. However this may be, *O. Bluntii* is the better of the two, and as both were described about the same time Mr. Bateman claims for *Bluntii* the name of *Alexandræ* in the event of their merely proving to be varieties of one species. *Evagil Pippin*, a pretty golden yellow Apple, of good flavour; *Azalea indica Roi des Beautés*, rose, edged with white; *Calathea*, or *Maranta*, *Veitchii*, and *Podophyllum Emodi* form the subjects of the remaining plates. There is also a portrait of the late Dr. Lindley.

L'ILLUSTRATION HORTICOLE for January, February, and March, has plates of the following :—

Hyophorbe Verschaffelti, known in commerce as *Areca Verschaffelti*, a very handsome Palm, found in the Mauritius and Réunion, whence its seeds were sent to M. Verschaffelt, who first exhibited it in 1859, and subsequently at the Brussels Exhibition in 1864. His largest plant is now nearly 10 feet high, but it sustained a severe check from exposure during the exhibition, and a still larger plant died from that cause. The leaves are from 6 to 9 feet in length, and gracefully curving downwards, the leaflets are linear-lanceolate, from half an inch to 2 inches in breadth, according to their age, and from 18 inches to 2 feet in length, smooth, shining on both sides, with a raised whitish central nervure, and curve downwards towards their extremity. The common petiole is marked with a broad bright orange line extending throughout its length.

Hyophorbe amaricaulis (*Areca speciosa*), equally handsome with the preceding, but apparently not attaining so large a size; only young plants, however, have been observed. The leaves of the largest of these measure from 3 to 5 feet in length and about 2 feet in breadth; and the leaflets, which are smooth and shining on the upper side, are about 18 inches long, have a whitish central nervure and a very fine reddish line at their margin; on the under side are numerous chaffy scales. The leafstalks are broadly lined with rose on a brown ground.

Trichinium Manglesii, figured and described in our Volume for 1865.

Camellia Roma risorta, raised some years ago by M. Del-Grande, of Florence, but only recently sent out. The flowers are very large, bright rose, with numerous crimson streaks and lines, each petal lightly edged with white.

Bougainvillæa lateritia, reproduced from a plate in the "Floral Magazine" last year.

Maranta splendida, discovered three or four years ago by M. Baraquin in the Province of Para, in Brazil, and by him sent to M. A. Verschaffelt, of Ghent. The leaves are of very dark shining green on the upper side, marked with broad oblong bands, pale green, or slightly tinged with yellow, and extending from the midrib towards the margin, which, however, they never quite reach. These bands vary in length and breadth, but are always broadly obtuse at their termination towards the margin. The under side is of a uniform violet purple. A fine addition to ornamental-foliaged plants, resembling *Calathea Veitchii* in its general character.

Bignonia argyreo-violascens.—A good representation of this pretty plant, which has been frequently exhibited at recent Shows.

Dieffenbachia gigantea.—A double plate, giving the foliage on a scale of nearly one-fourth the natural size at present attained. The largest plants in M. Verschaffelt's stoves have stems upwards of $4\frac{1}{2}$ feet in height and a foot in circumference, with leaves from $2\frac{1}{2}$ to 3 feet in length, and heads measuring from 7 to 9 feet round; and yet these are far from having acquired their full size. The leaves, and the leafstalks as well, being marked with numerous conspicuous white blotches, such plants must, as the editor remarks, have an admirable effect in a stove.

Comparettia coccinea, not by any means a new plant, having been described by Lindley in the "Botanical Register" many years ago, but still rare.

Camellia Clodia, supposed to be of Italian origin. Flowers very large, the petals imbricated, bright rose with a scarlet tinge, veined with rose, and having an occasional stripe of white.

THE FLORAL MAGAZINE for March has for its first plate *Sphacele cerulea*, a softwooded plant, belonging to the natural order Labiatae, bearing numerous spikes of lavender-blue flowers in a warm greenhouse in winter. It is in the hands of Mr. Bull.

The second plate is a representation of *Nerine Fothergillii*, figured "not as a novelty, but as an interesting decorative plant, which ought to receive more attention than it has met with."

The third plate has for its subject *Maranta roseo-picta*, the leaves of which are "of a beautiful rich glossy green. The midrib is of a lovely rose colour, and two irregular bands of the same colour run up each side of the leaf, midway between the midrib and edge." It was discovered in October, 1864, in the regions of the High Amazon, between Loreta and Iquitos, by Mr. Wallis, the collector for M. Linden, of Brussels.

The fourth plate is a group of *Pompon Chrysanthemums*, consisting of *Fairy Nymph*, a full-sized white; *Rose d'Amour*, clear rose, the base of the "petals" white; and *Torfrida*, bright golden amber, very full and rich in colour. They are sent out by Mr. Salter.

The April Number of the same publication contains plates of

Epiphyllum truncatum tricolor or *elegans* (we are left in doubt which is its name, for the letter-press gives both), one of the numerous continental varieties, having orange scarlet and purple flowers.

Pelargonium peltatum elegans, an Ivy-leaved variety, with delicate pink flowers, described as being larger than in the ordinary varieties of the same section, and forming a better truss. It is in the hands of Messrs. E. G. Henderson.

Maranta illustris, discovered at the same time as *Maranta roseo-picta*, and in the same district of Ecuador. The leaves are of a bright green, marked by transverse bands of a deeper shade of green, sometimes reaching down to the midrib, which is of a pale rose. Two irregular zigzag bands of yellowish white extend on each side of the leaf from the base to near the apex. The under side of the leaf is of a uniform purplish maroon.

Primula kermesina plena and *Queen of England*, the former a large double flower of a rosy carmine tint, and the latter, also double, white tinged with blush, are two varieties of Messrs. Windebank & Kingsbury's fine strain.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY.—The second spring Show took place on the 12th of April, and was rather an extensive display for so early in the season. Azaleas and Roses constituted the principal features, but there was also a very respectable array of stove and greenhouse plants, contributed by Messrs. Lee, of Hammersmith, F. & A. Smith, Mr. Fairbairn, Sion, and Mr. Bartlett, Hammersmith, while Mr. Bull, as usual, brought forward a numerous collection of new plants. The Azaleas from Mr. Turner, who was first in every class for that flower in which he could compete, were remarkably fine pyramidal plants, exhibiting less of that stiffness of training and crinoline character so much complained of a year or two ago, and they were, moreover, beautiful masses of bloom. The varieties which he exhibited were Louise Von Baden, Queen Victoria, Belle Gantoise, Perryana, Magnificans, Duc de Nassau, Eulalie Van Geert, Flower of the Day, Prince Jerome, Brilliant, Iveryana, Magnifica flore pleno, Magnet, and a plant called Union, being Etoile de Gand and Variegata superba on the same root. A fine plant of Criterion, about 5 feet high, also from Mr. Turner, received the first prize as a single specimen. The plants from Messrs. Lane, who took the second honours, were smaller than those from Mr. Turner, but likewise in beautiful bloom: and from the same firm came also a fine collection, very even in size and bloom. George Eyles and Fire King, two new varieties, were shown by Mr. Turner; the flowers of these were very large, orange scarlet, with the upper petals lightly spotted with crimson in the one, and heavily in the other; both are likely to prove acquisitions. Of Roses, fine groups were exhibited by Mr. Turner and Mr. W. Paul; but the chief interest in this part of the exhibition centered in the new Roses of 1865 and 1866. Of these, numerous collections came from Mr. W. Paul, Messrs. Paul and Son, and Mr. Turner, who took positions in the prize list in the order in which they are named. Among the varieties seen to most advantage were Glory of Waltham, John Keynes, Dr. Lindley, Dr. Andry, Xavier Olibo, Duchesse de Caylus, Rushton Radclyffe, Maréchal Niel, Mademoiselle Amélie Halphen, Madame Moreau, and Duke of Wellington. Several collections of Cinerarias were produced, but their appearance was not striking, and some excellent Calceolarias came from Mr. James. Auriculas were confined to a fine set of twelve, shown by Mr. Turner, the same number exhibited by Mr. James, and good

Alpines from Mr. Turner. Other subjects chiefly consisted of a number of finely-bloomed dwarf Rhododendrons in small pots, contributed by Messrs. Lane; a new variety of *Climanthus Dampieri*, in which the flowers have a white keel tipped with scarlet, *Genista prostrata*, compact in growth and bearing bright yellow flowers, and variegated Japanese Ivy, all three from Messrs. E. G. Henderson; and a variegated-leaved *Kerria japonica*, better known as *Corchorus*, from Mr. Turner, and which is likely to be a useful addition to hardy variegated plants. T. Luscombe, Esq., of Combe Royal, sent a basket of Oranges, Lemons, and other fruit of the Citrus family, grown in that part of Devonshire with merely the protection of reed-frames in winter; also Camellias and Sikkim Rhododendrons bloomed in the open air. Mr. Bull exhibited among other novelties the beautiful *Maranta splendida* noticed in another page, *Bignonia argyræa violascens*, and *Psychotria macrocephala* with large heads of white flowers produced from amidst the leaves.

The fortnightly meetings continue to be well attended, and are frequently the means of directing attention to matters that might otherwise escape notice. Thus at the meeting of the 3rd the Rev. M. J. Berkeley made some remarks on Truffles, and, after recounting various attempts which had been unsuccessfully made to cultivate those refractory but delicious fungi, it was stated that the experiment would be tried at Chiswick this year, and he hoped that though the season was rather far advanced some result might be obtained, either in the shape of a crop or a further insight into the conditions likely to insure success. The great desideratum was to grow Truffles by spawn in the same way as the Mushroom. At a subsequent meeting—that held on the 17th—Mr. Berkeley again returned to the subject of edible fungi, and stated that an attempt would be made at Chiswick to cultivate these as well. Their value as an article of food was insisted upon, and particularly the fact of their containing a considerable amount of nitrogen, which forms so important a nutritive constituent in the flesh of animals. Afterwards Mr. Bateman, who was to have given a lecture on *Dendrobium MacCarthiæ*, the Rainy-month flower of Ceylon, had the flower arrived, made some interesting remarks on the Orchids, particularly directing attention to a magnificent spike of *Odontoglossum Pescatorei* shown by Mr. Rucker, who, when the meeting terminated, kindly allowed it to be distri-

buted among the ladies. Two species of *Calixene* were then noticed as charming plants for cool greenhouses, where they will not only carpet the ground, but clothe the naked stems of plants. At the two meetings twenty-eight new members were elected, and three societies admitted into union.

ROYAL BOTANIC SOCIETY.—During the past month two Shows have taken place at the Regent's Park. That of April 7th was very gay, for it was then that the fine Azaleas of Mr. Turner and Messrs. Lane first made their appearance, and there was besides a plentiful display of stove and greenhouse plants, and Ferns, Begonias, and other fine-foliaged plants, enlivened by *Cinerarias*, *Cyclamens*, &c. A new *Cineraria*, exhibited by Messrs. F. & A. Smith, and called *Perfection*, gained a first-class certificate. It is large and showy, violet purple, with a narrow ring of crimson towards the base of the ray florets, with a narrow ring of white round the disc. The second Show during the month, and the last of the spring Shows, was held on the 21st; but with the exception of the Roses from Mr. Turner and Messrs. Paul & Son, which were very fine, and *Pelargoniums* in excellent bloom shown by Mr. Wiggins, gardener to Mr. Beck, of Isleworth, it did not present any remarkable feature.

DIOSCOREA BATATAS.—M. D'Auvers stated in a recent Number of the "*Revue Horticole*," that he had been very successful in the culture of this *Dioscorea*, having obtained roots about a yard in length, a result which he ascribed to the use of phosphate of lime. He then recommended *Dioscorea* roots eaten raw

as a preventive and cure for scurvy; but in the last Number of the same publication appears another letter from him, stating that he has found that the roots contain an acrid principle, which might cause bad results. He says that last year in preparing *Dioscorea* flour for his own use, on agitating the water in which the roots had been grated, he and his assistant experienced in their hands and arms a sensation similar to that produced by the sting of a nettle, accompanied by redness of the skin. The same thing occurred every time he stirred the fresh-grated pulp, and he attributes this result to the presence of some acrid principle which disappears in cooking. *Dioscorea* flour, if better known, would, he believes, become an important article of food.

TRUFFLES.—Some notion may be obtained of the extent to which the trade in Truffles is carried in France, when we read that in the market of Apt alone 1600 kilogrammes (about 3500 lbs.) are exposed for sale every week in the height of the season, and that the lowest estimate of the quantity sold during the winter amounts to 15,000 kilogrammes (nearly 33,000 lbs. weight). According to another account, the Department of Vaucluse yields from 29,500 to 30,009 kilogrammes (57,100 to 66,158 lbs.) annually. The vast quantity that must therefore be procured and sold in all the French provinces where they grow, and the large revenue arising therefrom, should be a great inducement to the proprietors of suitable localities to attempt their cultivation in England.—C. E. BROOME, *Journal of Royal Horticultural Society*.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Orchids.—These superb plants are now making active growth; keep the air of the house humid by damping the interior frequently each day; shade must be given. Examine plants growing on blocks and in baskets, and soak them every two or three days; syringe them daily in the interval. Plants requiring to be re-dressed or potted should be attended to. Remove plants in bloom to a cooler house, to prolong their beauty.

GREENHOUSE.

To make room for choice plants in bloom, as *Geraniums*, *Calceolarias*, *Cinerarias*, &c., several comparatively hardy plants may now be transferred to a temporary shelter. *Myrtles*, many *Acacias*, *Rhododendrons*, *Aloes*, &c., may be trusted to frames, or any odd house or shed for a few weeks, to make room for the above more showy plants. *Heaths* and *hardwooded plants* must now have abundance of air; small plants will grow nicely now in frames. Shade on bright days. *Camellias* are now forming wood; more heat will be re-

quisite, which may be obtained by closing the house earlier in the day. Shade and syringe daily; water plants not potted this spring with soot or clear manure water. When the young shoots are full-grown give less shade by degrees, and more air, to aid the formation of bloom-buds. *Cinerarias*, when on the decline should be placed in frames or pits facing the north. When seed is not required, the sooner they are cut down the better, that good early cuttings may be procured. *Pelargoniums.*—The shading should now be generally up, and used according to the brightness of the weather; there should be no green fly to keep under. The bees must be kept out of the house with netting. The closest attention must be observed in watering. Plants for July-blooming should now be tied out; give them plenty of room, and keep them as cool as possible.

CONSERVATORY.

Chinese Azaleas, *Cinerarias*, and *Pelargoniums* slightly forced, will make a great display just now, assisted by forced Roses and

a few yellow Calceolarias. Keep up a good stock of Orange trees, Daphnes, and scented-leaved plants, for their agreeable fragrance. The temperature should now be kept down by shading and admitting more air; this will benefit Heaths, Epacrises, and New Holland plants, brought in for decoration.

PITS AND FRAMES.

Directly these are cleared for planting out, fill them with Balsams and other annuals, to occupy the greenhouse during the summer. Newly pricked-off annuals for turning out may likewise be sheltered for a week or two in them, to get hold of the pots before planting.

FORCING.

To Grapes changing colour admit plenty of air; and if growing in pots, or in-door borders, reduce the water supplied to the roots; stop and train the shoots of succession vineries, and thin the bunches as soon as the berries are formed. Fires will be necessary for late Grapes, during the time they are in bloom, to insure their setting well. Vines at this stage should be kept as dry as possible; but, both before and after the blooming period, use plenty of water in each house, sprinkling the floors, walls, &c., often each day. Tie in the shoots of Peach-trees as they advance; thin the fruit by degrees. Do not allow many to stand over till after stoning, or you may lose more than you want; keep down red spider by the application of clean water, and the fly by timely fumigations.

KITCHEN GARDEN.

Weeds by this time there ought to be none; and therefore hoeing and loosening the surface round growing plants will only be necessary, drawing a little earth to Cabbages, Cauliflowers, Peas, &c., as you proceed. Sow Dwarf Kidney Beans, Longpod and Green Windsor Beans, and Peas for succession; also Spinach, Radishes, Turnips, Onions for salads, and some Endive for an early crop. Make a good sowing of Scarlet Runners in a warm situation, either to be sticked like Peas, or to be kept dwarf by topping when about a foot high. In the latter case it is well to spread some litter over the ground in order to keep the pods clean; this, however, need not be done till after they have formed. Prick out Cabbages, Brussels Sprouts, Savoy, and Celery, and plant out Vegetable Marrows in rich ground. Thin Beet, Carrots, and seed-beds generally when these are at all crowded.

HARDY FRUIT.

Disbudding the more choice wall trees, as Peaches, Apricots, &c., should take place gradually, reserving such shoots as will be required to afford the crop for next season. Thinning the young fruit when too thick should be done at two or three times, taking off a few each time, till the final number for swelling off only remain.

FLOWER GARDEN AND SHRUBBERY.

Where planting has been deferred till late in spring, mulching must be resorted to, and

the newly planted trees, particularly evergreens, damped overhead every afternoon, until they commence growing, when watering at the roots will suffice in dry weather. Supposing the beds for the summer-flowering plants to have been duly prepared with the proper compost necessary for each kind of plant, the turning-out of the hardiest may be proceeded with, especially if there is much to do, as it will give more time for the others. Pentstemons, Dianthus, Phloxes, and many half-hardy, biennial, and perennial plants, should first be transferred to the open beds; then may follow Verbenas, Fuchsias, and similar things; reserving Geraniums, Dahlias, Salvias, Heliotropes, &c., to the last. *Annuals*.—Thin out those up, leaving three, four, or more in each patch, according to their size. Sow towards the end of the month for autumn-blooming. Plant out Stocks, Asters, &c., sown under glass; rich soil suits them best.

FLORISTS' FLOWERS.

Auriculas.—As soon as out of bloom, remove them from the stage to a cool north border, standing them on a bed of coal ashes. A temporary framework should be erected, that lights may be placed over them in very wet weather, but leaving them open at the sides on all occasions. Watering should be strictly attended to, and they will make fine growth by the time they require repotting, which should be done towards autumn. *Carnations and Picotees*.—Look well and vigilantly after aphides, which must be kept under. The plants should now be permanently staked. The side shoots of strong plants will often start for bloom; these should be stopped, but not too early, or it will cause other layers to start for bloom. *Dahlias*.—Repot without loss of time, using good rich soil, and harden the plants gradually before planting out. Neither an early nor a large plant is absolutely necessary to insure good blooms; on the contrary, a late-struck plant is preferable to one that has become stunted in its growth. Seedlings must have plenty of room, light, and air, or they will become drawn, and will suffer when they are planted out. *Pansies*.—Seedlings should be often and carefully examined, marking the promising varieties when they are in true character. Propagation should be attended to this month, the cuttings being kind and healthy; small side shoots are best. Autumn-saved seed should now be sown, to bloom next autumn. Never sow seed to come in bloom during the summer months, or it is difficult to ascertain what the seedlings really are. *Pinks*.—Thin out blooming shoots to three or four on a plant, according to its strength and the known habit of the flower; also disbud the principal shoots as soon as the side buds can be removed; water liberally, using weak liquid manure once a-week. *Tulips*.—Shading during the day, and keeping them exposed during the morning and evening, is all that can be done this month.



1. Gem.

2. King of the Crimson.

ALPINE AURICULAS.

WITH AN ILLUSTRATION.

THE class of Alpine Auriculas has not hitherto been highly estimated by florists; but the beautiful varieties which Mr. Turner has within the last year or two made public will probably gain for them a higher position and greater consideration. Certainly they will be appreciated by the flower-loving public.

The two varieties we now figure give a good idea of the highly ornamental and varied character of these Alpine Auriculas, which are of the easiest culture, and perfectly hardy so far as the temperature of our winters is concerned. They only require shelter from excessive rain. They are among the most beautiful of spring flowers.

M.

OUR FRUIT CROPS.

AFTER a very cold and unfavourable spring the prospects of a fruit crop are very cheering. With, perhaps, the exception of Peach trees, the wood of most trees got well ripened last season, and, in consequence, there has been a great deal of blossom this season. Apricot trees were very full of bloom, and, owing to the mildness of the winter, some of the early blooms began to expand in February, but were destroyed by the snow and frost that set in in the beginning of March. The very cold weather that continued throughout March retarded the opening of the flowers, and was unfavourable to their setting; but, notwithstanding, the crop is a very fair one. Peach and Nectarine trees were denuded of their foliage early in September by the numbers of aphides that infested them. The wood and buds, especially the strong wood, did not in consequence get properly matured. In general, there was plenty of bloom on the trees, but much of it fell off without setting, being, no doubt, imperfect from the unripened state of the wood. Some of the trees here which had the best ripened wood have set their blossom well; whilst others, with stronger wood, and which were full of bloom, have set very few fruit.

I fear Peaches and Nectarines on the open walls will not be a full crop. The trees have broken well, and are making fine healthy young shoots. Pears will be a very heavy crop in general. Cherries and Plums also will be good crops. The Apple trees have been very beautiful, and I think the crop will be a plentiful one. Gooseberries, Currants, and Raspberries will bear very plentiful crops. Crops of all kinds are backward, owing to the very dull, cold, unfavourable weather we have had for many weeks.

The Strawberry crops, from present appearances, will, I believe, prove to be very deficient. The plants did not recover from the long continuance of hot dry weather we had last summer. Some sorts suffered much more than others. Sir Harry promises to be the fullest crop here this season, as it was last. I have some young plants of British Queen that promise to be pretty good; the old plantations look only indifferent. Keens' Seedling will be much better than last season. Oscar looks well. Of Trollope's Victoria the plants are fine, but are not showing much bloom. Sir Charles Napier looks tolerably well; the plants are very good, but the trusses are not very plentiful. Jucunda was good last year, and promises to be equally good this season. The plants are fine, and the trusses plentiful. It seems to be a good strong grower, of hardy habit. Should it do as well as its present appearance seems to warrant, I will feel inclined to increase my stock of it. Eltons do very well here; I never saw them better anywhere else. I had a fine crop of them last year, though not

quite so abundant as in previous seasons. Eleanor is not a free bearer here, though I get some very fine fruit. From what I hear, I fear the crop of Strawberries will be a light one; but if the Strawberry crop be light, with an abundance of most other kinds of fruit the deficiency will not so much matter.

Stourton.

M. SAUL.

REMARKS ON FRUIT TREE CULTURE.—No. 10.

THE necessary winter pruning may be performed at any time during the dormant season, or, in fact, as soon as the leaves are all off, and will simply consist in shortening the shoots, more or less, according to their strength, taking 18 inches as a maximum length for strong ones, and the weaker in proportion. It is good practice then to take out all the old shreds and nails, and while the trees are loose to inject forcibly some strong clear lime water all over the walls at the back of the trees, for the purpose of expelling noxious insects from the crevices and nail-holes. The trees will be better left loose until early in March, when they should be dressed with composition and again trained to the walls with new nails and shreds.

This practice of leaving the trees loose all the winter is intended for the purpose of keeping down any undue excitement which may be caused by the prevalence of bright sunny days, which frequently occur during that season. The Peach is constitutionally liable to become very early excited into growth, and I have seen great injury result from the occurrence of severe frost in spring after a mild winter, through buds being killed and fractures occurring in the bark of the young wood, caused, probably, by the contraction and expansion consequent upon the ascending sap being frozen. If, therefore, the trees are left loose from the walls, they are to a certain degree removed from the influence of the radiation of heat from the walls, and thus the period of excitement is considerably retarded, greatly to the prospective advantage of the trees.

My observations have hitherto been confined principally to the treatment necessary to be followed out in the case of young trees; but as they advance in age and growth a number of other influences begin to work upon them, and the treatment will have to be modified in accordance therewith. But I think it will be best that I should follow out the old adage of "line upon line, precept upon precept," and proceed to the details of practice at the commencement of the second year's growth from the permanent planting.

If the trees, previous to that final planting, were passed through a good preparation elsewhere, so as to lay the foundation, as it were, of good well-balanced trees, we may, in such a case, reasonably conclude that in the second year we may look for a fair proportion of fruit, according to the strength of the tree. Very strong and vigorous young trees may be permitted to carry more fruit than those which are weaker or even of only an average fruit-bearing strength, and for this reason—because the production of fruit is calculated to exhaust the energies of the trees very much, whilst the production of wood and foliage is calculated, where there is feeding material below and room enough above, to increase the strength and vigour of the trees in an almost indefinite degree. It is the perfect comprehension of these two opposing influences which enables the practitioner to work them against each other, to the mutual benefit of both trees and manager. I repeat, then, that very vigorous and luxuriant young trees may be permitted to carry a much greater weight of fruit proportionally than others which apparently need encouragement to keep up a tolerable growth.

It is not always, however, that, with the greatest care, strong vigorous trees

can be induced to bring their fruit to the stoning point. There are cases in which, although covered with bloom, and thus to all appearance well set, the vigour of the trees is so great that the woody growth appears to absorb all the sap, and the fruit drops off abortive. It is passing strange that there is a natural tendency in fruit to fasten itself and fatten, as it were, upon the weaker branches. Such is, however, invariably the case, and the knowledge of the fact is useful in practice; for if the strong trees before alluded to can be induced to carry fruit, it will operate beneficially by weakening the process of the formation of woody growth; but if not, then the quickest remedy will be root-pruning early in October. In anticipation of that operation a more considerable development of woody growth may be allowed, in order that the operator may have a good choice of fruit-bearing wood in the next season; for it is not to be understood that the operation of root-pruning is calculated to render a tree barren the following season—on the contrary, the check appears to be just that threatening of life which induces the strong shoots to carry their fruit. Of course, the operation must be performed at the right time, particularly as in some cases it may be best to lift the tree entirely and replant it—a practice which may be followed out with even large full-grown trees with very great advantage, whether for the purpose of checking luxuriance by root-pruning, or that of renovating the borders by the removal of old compost and supplying new.

The routine of treatment of the young trees during the second year will not materially differ from that before advised for the first year. As, however, the circumference to which the outer branches extend becomes increased, timely provision must be made for keeping it well furnished, by training out an extra shoot from the under side of the leading branches. They may not always be required when the tree is re-trained, but it is always best to have a few shoots in reserve, for in this uncertain climate great injury frequently results from accidental causes over which we have no control. These extra shoots need not be entirely removed if not required, but should be shortened to about five or six buds, and one shoot selected and trained from each the following season. They will contribute to preserve the vitality of the central part of the tree, and give the operator a chance of thinning out the extremities and keeping his trees at home.

Redleaf.

JOHN COX.

PLEROMA ELEGANS.

THIS splendid Melastomad is chiefly interesting from the fact that it produces abundance of its deep blue-purple flowers on comparatively small plants, and may be managed without a plant-stove, which most of its neighbours require. The fact that the large flowers are produced most freely on the points of last year's shoots furnishes the key-note to its culture. The next thing essential to success is that it will not thrive if kept in a plant-stove, nor yet will it thrive if kept in a cool greenhouse. In the one case it will get straggling, and the wood will not ripen well enough to bloom freely; and in the other the plant will assume a starved appearance, and become brown and unhealthy.

In propagating it by cuttings, any time during summer would do; but, as a matter of choice, I would prefer March or April. The points of shoots getting firm at their base would answer, but I prefer firmish side-shoots, from $2\frac{1}{2}$ to 3 inches long, rather green at the point, but brownish and firmish at the base. These are to be cut across at a joint at the bottom, the leaves there removed; the pair above either removed or shortened, and, if long, a

little shortening given to all but the terminal ones. They may then be inserted in a well-drained pot, in silver sand over very sandy peat. The success will be all the more certain if a small pot is reversed in the centre of the cutting-pot, so that the base of the cuttings may abut on the centre pot. Fill any holes made by the dibber with silver sand; water well; and, when the sand is firm and the plants dry, cover the pot with a bell-glass, and plunge the pot in a mild bottom heat, shading the glass in bright sunshine, but giving no shade when cloudy, removing it early in the afternoon, and giving a little air under the glass at night, replacing it before sunshine in the morning, and preferring to keep the atmosphere surrounding the cuttings and the bed somewhat moist instead of watering the cuttings much. When struck, pot-off singly in small pots, or three round the sides of a four or five-inch pot, using at first a light soil, as three parts of heath soil to one of loam and one of silver sand, and increasing the amount of sand as the plant gets older.

Under the most favourable circumstances, a cutting could hardly be expected to make a show as a flowering plant under three or four years, or even more. Amateurs would, therefore, be nearer their purpose to procure from a nurseryman a nice, bushy, healthy plant, in a four or a six-inch pot; and though I give the process of propagating, yet, with all such things, it will be the truest economy to keep in mind the division-of-labour principle and purchase a nice plant, as propagators by profession can do all that sort of thing at half the labour and expense that any amateur, or any gardener with a great variety of plants demanding his attention, could by any possibility do.

Supposing the plant to be obtained, my cultural remarks will chiefly have reference to getting it to bloom early in the summer of the following year. The plant, then, home-raised or purchased, being a nice little stubby plant in the end of March or beginning of April, and occupying a five-inch pot pretty well filled with roots, I would keep the plant in a temperature of from 50° to 55° , with a view to promote free growth, and this, especially in a bought plant, for a fortnight or three weeks after obtaining it, so that all the stagnation of the journey might be got over. The next thing to do is to give the plant a larger pot. Unless in skilful hands that will regulate watering to a nicety, very large shifts are to be avoided; but so are very small ones, as the plant seems to need a little nursing after every shift. Well, supposing the plant is in a five-inch pot, I would transfer it to a seven or an eight-inch one, draining the pot well, using a little broken sifted charcoal over the drainage—that is, getting rid of the dust; then gently disentangle the roots outside the ball, so that they shall run at once into the new soil, taking care that before shifting the ball is thoroughly and sufficiently moistened, as fresh-potting such a plant dry is next door to throwing it away. The soil should be in good order, neither wet nor dry, and picked-in pretty lightly among and to the roots.

For plants about this size three parts of heath soil to two of loam should be used; and one part more may consist of silver sand, broken pots, and nodules of charcoal, so as to allow free passage for water. When the plants come to stand in a ten or twelve-inch pot, the fibry loam and heath soil may be in equal proportions, and then the loam will insure more stubbornness in the growth. Then, too, a little fine leaf mould may also be used in the soil. A little moss will likewise be an advantage between the soil and the drainage.

FIRST SUMMER'S MANAGEMENT.—After potting, it would be well to raise the temperature gradually from 50° to 60° , using a little shade in bright sunshine, and frequent sprinklings overhead, until the roots are working freely in the fresh soil. Until then, water should be given carefully, so as not to deluge the fresh soil until the roots get into it. A skiff from the syringe will be useful in sunny afternoons until the end of July. As soon as you perceive the roots

are taking fresh hold, the training of the plant should commence, fastening some shoots nearly horizontally, but letting their points have an upright direction, so that the plant when full grown shall have an orbicular form. Many of the shoots will need no stopping, owing to their comparative weakness; but all the stronger shoots will need to be stopped several times, so as to insure compactness and regularity of growth. When blooming next season is resolved on, no stopping of shoots should take place after the end of June. Water will be required in greater quantity as the sun gains strength; and as the roots get to the sides of the pot, manure water will help to give strength and colour, using it in a clear and weak state. Were I not to think of blooming the plants the following year, I would shift again in June; but, wishing to have flowers, I will not do so, but will gradually give the plant more air after July, to consolidate the little shoots.

AUTUMN AND WINTER TREATMENT.—In August, in addition to giving more air in a greenhouse, I would prefer the plant to stand in a cold pit, with glass over it, air being afforded back and front. In September, I would gradually diminish water, and by the end of the month put the plant in a house where the temperature will not be below 45° , nor above from 50° to 55° with fire heat, during the winter. Water, also, should be given carefully, and the plant will be safer if the pot stand inside of a larger pot, with damp moss stuffed between them. In spring, the plant may have from 5° to 10° higher temperature, as the sun gains power, and more moisture in proportion, which will cause the flower-buds to show and swell.

When in bloom, the plants will keep their beauty longer in a cooler atmosphere, and with a little shade to break the fierceness of the sun's rays. When done flowering, give what little pruning is necessary. Encourage the plant to grow, shift into a larger pot if necessary, keep close and moist until there is free fresh rooting, and, in autumn, give more air and sunlight, as already described, and house in time for the winter. If a little fly appears, smoke in the usual way. The most troublesome insect is the thrips, and the best preventive is a free use of the syringe when growing, and frequent smokings and washings as soon as one is seen. If manure water is used from the droppings of animals, it would be advisable to soak the droppings at first in boiling water, which will destroy all vermin and their eggs, and the water may be reduced enough afterwards. In watering in winter, the water should be soft, and a few degrees warmer than the atmosphere of the house.

F.

CULTURE OF THE PEACH AND NECTARINE.

It may seem superfluous to write upon the culture of the Peach and Nectarine, because so many cultivators have already given their experience on the subject. Now I have been a grower of these fruits for nearly half a century, and during that long time I have studied the various causes of success, and, what is equally important, the causes of failure; and the result of my reflections leads me to the conclusion that there are several points of culture that the writers on this subject have either entirely overlooked or have not given sufficient importance. I have come to the determination, therefore, of writing a few notes on their culture; and in so doing, I shall endeavour to treat fully of everything necessary to be done in order to grow healthy long-lived trees that will produce annually a fair crop of fruit. I attempt this with all due deference to those who have gone before me, and shall not, in order to set up myself as a critic dwell upon, or even mention, where I think they are mistaken or not explicit enough to be understood by the tyro in Peach-culture.

I know, of late years, it has been the fashion to decry the hardihood of these fruits in this country. Now that glass is cheap every unsuccessful grower says the Peach should be in all cases covered with glass to ensure a crop. I would ask such, Are you prepared to prove that the climate of this country is more severe than it was thirty or forty years ago? Unless that can be proved I opine that, with proper care and close attention to a proper course of culture, from making the border to the ripening of the first crop of fruit, the trees bearing these delicious fruits can be grown as successfully now as our older gardeners grew them fifty years ago. It is true when unfavourable seasons occur unprotected trees will suffer; but in such seasons the skill, attention, and forethought of a good gardener will be brought into play to overcome the untoward weather, and success in such seasons shows the difference of skill.

Any careless cultivator can have a crop of fruit in warm summers, provided the preceding one has been warm also to ripen the wood of his Peach trees. But that is not sufficient for the owner; he wants fruit every year, and if he has provided all things necessary he ought to have his want supplied.

The question now arises, What is required in order to succeed with moderate attention in cultivating the Peach in this country without the aid of glass? The first thing is a proper situation. Formerly a great notion was entertained by our gardeners, or planners of gardens, that a low sheltered situation was the very best for a garden. That mistaken idea is, I think, now entirely exploded. A low situation, instead of being the best, is the worst for a fruit garden. The most careless observer must have remarked that tender plants suffer earliest from frost, both in the spring and autumn, in low grounds; whilst on moderately high land the slight frost has no effect on them. Many an autumn eve we see heavy mists on low grounds, whilst higher land is quite clear of them. The reason of this is that cold air is heavier than warm air, and therefore it sinks down by its gravity and shows itself as mist, displacing the warmer; and when the cold is so intense as to reach the freezing-point, vegetation suffers. These patent facts lead to the conclusion that a fruit garden should be placed on a moderately elevated platform. Even an elevation of 50 or 100 feet above the bottom of a valley would be desirable. I might give many instances of places where the gardens are placed in low situations, where such fruits as the Peach, Nectarine, and Apricot often fail in yielding fruit. Sufficient for my purpose it is to mention Chatsworth, Worsley Hall, Trent-ham, and the old garden, now removed, at Welbeck. In such places where the gardens are still continued it has been found necessary to cover the Peach walls with glass, in order first to ripen the wood, and secondly to ripen the fruit. This covering of glass is not adopted for the purpose of forcing the fruit into early maturity, but is used merely as a protection against early and late frost. In a properly elevated situation the glass as a protective agent may be dispensed with.

From the above remarks I think it will be seen, that in order to succeed in Peach-culture against walls without glass, it is desirable—nay, absolutely necessary, to place the garden, where possible, in a moderately elevated situation. If there are higher grounds on the north, north-east, and north-west sides of the garden, and those hills are planted with forest trees to shelter the garden from the winds blowing from these quarters, you have the best situation imaginable, not only for fruit-tree walls, but for every other production expected from a garden. Let every one, then, who has the forming of new gardens, study over the above remarks, and, if possible, choose such a site for the fruit and kitchen garden.

SOIL.—The next most important agent for the production of the fruits, Peaches and Nectarines, is the soil. This includes drainage, subsoil, and surface

soil. In the course of my experience I have observed that all stone fruit, without any exception, thrive best and are most fruitful in calcareous soils. In the limestone districts of Yorkshire the Peach trees against walls, where properly attended to, are healthy and fruitful; and round the town of Sherborne, where limestone abounds, that excellent preserving Plum, the Winesour, grows in the hedges and bears profusely, and also the Damson Plum is still more common. Almost every cottage has its garden hedge formed of these excellent fruits. I mention these as a proof of my maxim that stone fruits thrive best in the limestone districts, where the subsoil is formed entirely of that material. The garden at Womersley Hall, the seat of Lord Hawke, has a subsoil of limestone; and there Peach trees live to a great age and bear fruit plentifully. Also near there is Byram Hall, the seat of Sir John Ramsden, and the garden is also similar to Womersley as to its soil. In that garden some years ago there was the finest Peach wall in the kingdom. I forget the length, but it was considerable, and eight trees completely covered it, not a sickly branch to be seen. They were trained in what was termed the Seymour method, which I shall describe presently.

Well, what does all this amount to? Why, that whoever has the opportunity should form his Peach-borders with soil containing calcareous matter.

Let me, however, begin at the beginning. Supposing it is determined to make a Peach-border, either in a new garden or an old one, begin first by excavating the soil; the necessary width for ordinary walls need not exceed 12 feet. In general, as a useful rule, let the border be the same width as the wall is high. Then as to depth, 18 to 20 inches will be amply sufficient. The width being set out, then cut a main drain deeper than the bottom of the border: this main drain should be built with bricks laid flat and covered with flags the exact size of the drain. It should be placed at the side of the border the farthest from the wall, then form transverse drains across the border. If the subsoil is wet these cross-drains should only be 10 feet apart; if moderately dry then 12 or even 15 feet apart would do. Lay earthen tiles at the bottom, connecting them with the main drain in front; of course, these cross-drains should have a gentle fall to carry off the superfluous water; next fill up the drain above the tiles with open rubble or scoriæ from which the smaller particles have been sifted out; then, if it can possibly be procured, lay all over the border a layer of broken unburnt limestone. If this, however, cannot be obtained, then, instead, cover the bottom of the border with brickbats mixed with rough pieces of lime rubbish. This completes the drainage.

These trees require, in order to produce healthy, fruitful, and long-lived specimens, a strong pure loamy soil of an adhesive character, such as an upland good pasture would furnish. Take it off in turves about 3 inches thick, and cart it home near to the garden. Lay it in a long heap, and when sufficient is procured commence at one end to chop it into small pieces, and whilst that is going on mix it thoroughly with some old lime rubbish, unless you are so fortunately situated as to obtain the turf from a pasture on a limestone basis, then the lime rubbish will not be needed. Whilst the chopping and mixing process is going on procure some thinner turves, and with them cover the drainage grass side downwards. This will prevent the finer particles of the soil from falling into and choking up the drainage. When that is done lay some boards or planks, and wheel in the soil to one end, forming the border with a very gentle slope to rather more than the full height to allow for settling. From 18 inches to 2 feet will be ample depth. If the garden is situated on a level country, I would advise the border to be raised a foot higher than the general level; but if the garden is on a gentle eminence, as recommended above, then it may be nearly level with the rest of the garden.

It will be observed that I make no mention of dung as a component part of the soil. It is a great mistake to put any manure of any kind in a Peach-border. It is injurious to the trees in many ways, the worst being in inducing young trees to make what gardeners call water-shoots, or, as the French term them, *gourmands* or gluttons. Such shoots not only rob the rest of their due nutriment, but, also, they seldom in our climate get duly ripened, and then become diseased, ulcerated, and gummy. If, however, in process of time the border become exhausted, then it will be proper in the autumn to lay on the surface a mulching of rotten dung. The autumn and winter rains will wash down the soluble enriching qualities of the dung sufficiently, so as to give fresh food to the trees.

As to the time of making the border, I would advise the end of July and through August. The weather then is generally dry, and the soil is, of course, dry also. By doing it thus early the grass plants will perish, all but those on the surface, and they may be killed also by digging the border over two or three times before the winter sets in.

VARIETIES OF SOIL.—The only successful adaptation of a different kind of soil to the above that ever came under my notice occurred in the gardens at Wheatley Hall, near Doncaster, the seat of Sir W. B. Cooke, Bart., where I spent part of my apprenticeship. The natural soil there is of a light sandy nature, which, though excellent with plenty of manure for vegetable crops, was found not to be favourable for Peach-culture. The river Don runs through the estate, and deposits a close, compact sediment. This is called "warp soil." A sufficient quantity of this warp was collected, laid in heaps, and when in a proper mellow condition the Peach-borders were made of it without any other ingredient. The then gardener was a Mr. B. Mann. He had been there for a quarter of a century, and used this warp soil with the best effect. The trees grew well in it, producing just the right kind of healthy wood, and bore excellent fruit annually. It is true the walls were flued, and we used canvas screens to protect the blossoms against late spring frosts, and in wet summers the fires were lighted to heat the walls and ripen the wood; but these protective measures had been adopted before, when the natural soil formed the borders, and were not found effectual to keep the trees in health. Whoever, then, has such a soil conveniently placed near to his garden may make his borders of it without any fear of failure.

CHOICE OF PLANTS.—This is an important part of the business. When time of coming into bearing is not thought of much account, then maiden plants—that is, trees a year old—might be preferred; the cultivator then has the mode of training from the beginning under his own care; but I certainly would prefer trees that have been trained in the nursery three years. I should, however, take the precaution of visiting the nursery early in the autumn and choosing the best-trained and most healthy trees, then and there putting a mark upon them. This plan is the best, and most satisfactory both to the buyer and seller. Then, as soon as the leaves fall, the trees should be carefully taken up, the roots packed in moist moss, and the trees so packed as to travel safely to their destination. Thus packed both at the root and the top, they would in these railroad days come to hand in good condition. Directly they arrive let them be carefully unpacked and planted as soon as possible. If the roots should have become dry, I would dip them in water thickened with fine soil. The question now arises, At what distance should they be planted from each other against the wall? Some writers say 15 feet, and some as much as 24 feet. These are, however, extremes, the first being too close and the other too wide apart. The medium is the best. Eighteen feet is the distance I recommend. The best trees I know in existence now are at that

distance. If, however, the walls are low—that is, only 9 feet or less high, then the trees may be planted nearer to each other, as the angles of the shoots will bring them soon to the top of such a wall; but if 12 feet high, then my 18 feet will be a fair equable distance. As it will take several years before the trees will meet, standard-trained trees might be planted between those that are finally to cover the wall; but the cultivator must have the nerve to remove those riders, as they are termed, the very year the permanent trees require the space.

PLANTING.—In doing this let the roots be spread out equally every way, and not covered too deep—2 or 3 inches are enough. By spreading them out horizontally the roots will continue to, at least, have a tendency in that direction—a point to be desired, for then the roots are within the reach of the heat of the sun just at the time the shoots need all the help the roots can give them. In most Peach-borders, for the convenience of attending to the trees, there is a narrow path formed some 2 feet from the wall. That path should be made of a trellis of wood, so that the soil may not be too much compressed. If the path is soil only, the constant treading upon it must be injurious to the roots. Let every cultivator, then, set his face against such a path, unless it is trellised.

The planting being finished, the shoots should be securely fastened to the wall to prevent their being blown about with the wind, which otherwise would, in heavy gales, rub the branches against the bricks and bruise the bark, which might bring on in such places wounds that would canker and exude gum—a casualty always to be avoided. After that is completed, then lay a mulching of littery dung, extending a foot or so beyond the extremity of the roots. This will protect the roots from the frost, and will keep them in action all through the winter. It is remarkable what a large number of rootlets will strike out immediately after the trees are planted. It would seem as if nature was putting forth every effort to recover lost time in root-action in consequence of the removal, and the more these efforts are protected and encouraged the greater chance there is of the trees pushing vigorously in the following spring: hence the utility of protecting these young fresh roots, by mulching, from the winter's frost.

PRUNING, THE FIRST SEASON.—It is a common practice to cut back almost close to the stock, not only maiden trees but even such as have been trained at the nurseries, for one, two, or three years. This, it is alleged, is done in order to get the centre of the tree well filled with leading shoots to form the future tree. This is an undoubted mistake. There is no necessity for it unless the trees are very weak indeed. Maiden plants must of necessity be cut down to four or five buds to obtain as many branches to form a tree for a wall, and nurserymen, perhaps, are compelled for want of a wall to cut back older trees; but when a three-year-old tree is planted against a wall as a permanent tree, it is a barbarism to cut it down so severely the first year after planting.

TRAINING.—There are only two methods of training the Peach tree that are worthy of notice. The first is the one generally followed, and is named the fan method, from the main branches spreading out in a similar manner to the ribs of a fan: the second is a modification of it, and was invented by Mr. M. Seymour, gardener at Carlton Hall, near Snaith, in Yorkshire. Good fruit has been produced by both of these modes of training. In the course of my gardening life I have practised both methods, and must confess that I give the preference to Seymour's plan.

The first may be described as having the young shoots on both sides of the main shoots, and the other—that is, Seymour's—has the young shoots only on the upper side. It is necessary to mention that the Peach and Nectarine bear their fruits on the shoots made the previous year: hence it is needful to train

in annually young shoots to bear fruit the following year. This being understood, the cultivator will have to determine, at the time of planting, which of the above methods he will follow. Trained Peach trees from a nursery have generally five shoots. Now, if either method be adopted, the trees should be pruned in the latter end of February or beginning of March, and trained with one shoot for a leader and the others horizontally, two on each side; then every bud or nearly so will break, and the trees may then, by disbudding the useless or superfluous shoots, and training the remainder in, be furnished with well-placed leading branches and bearing shoots. The cultivator should study the figure the trees are to assume when the wall is covered with them, and lay-in branches accordingly to effect that purpose.

In the second year, if all has gone on well, the trees will be again pruned at the same season, and the year's shoots trained in fan-form; and so the management in regard to pruning and training must be followed up till the trees cover the walls.

If, however, the cultivator should choose to adopt my favourite mode of training, then he will proceed from the first to prune and train-in the shoots only which are produced upon the upper side of each branch. He will find this the most symmetrical, and, at the same time, the most simple and the most easily understood of any mode of training.

The summer pruning and training commences almost as soon as the buds break. The grand object is to obtain shoots for bearing the year following. In any mode of training, the young shoots should be retained that are placed near to the base of the shoot that is bearing fruit. All others should be rubbed off at once; they only, if left on any time, rob the really useful ones of nutriment, and crowd them unnecessarily: therefore, I say, off with them at once. If the leading shoot of the bearing branch is too vigorous nip off the ends, leaving a sufficient number of leaves to draw up the sap.

(To be continued.)

A.

ON THE CULTURE OF ERYTHRINAS.

THE different species of *Erythrina* are all splendid plants, with fine large leaves, and beautiful brilliant scarlet or red flowers. For late summer or autumn decoration they are very useful. During the winter months they should be kept perfectly dry. If the pots are laid on their sides the plants will do very well under the greenhouse-stages, or any place where they are safe from frost.

Cuttings of the young wood, taken off in May or June and put into sandy soil and plunged in a nice bottom heat, root very freely; but the best way of increasing the *Erythrina*s is from eyes of the last year's wood, put in exactly as Vine eyes are, plunged in bottom heat, and treated in a very similar manner.

The eyes should be put into pots or pans in February or the beginning of March. As soon as they have grown a little and made roots they should be potted off singly into small pots, and again plunged in a slight bottom heat. They should be kept close and be sprinkled slightly with water from a very fine rose. They will soon make roots into the fresh soil, and in a few weeks will be ready for a shift into larger-sized pots. The compost should now be one-half good turfy loam, one-fourth peat, and one-fourth good rotten dung, the whole well mixed up with a little sprinkling of river sand among it. If the plants are pretty well rooted they should have a liberal shift, and if they can have a little bottom heat for a few weeks longer they will grow all the more rapidly.

As the plants advance in growth they should be tied neatly to stakes. As soon as the pot begins to get pretty well full of roots, they should all be shifted into pots large enough to flower in, using the same kind of compost as recommended for the last shifting. After they have been all potted they should be placed in a late vinery, or other house, where they can have a temperature of from 55° to 60° , with plenty of light and air. They should be frequently syringed, to prevent the attacks of red spider. They will not require much water until they begin to root freely into the fresh soil. They should have an abundance of air after they show flower, and liberal supplies of water.

When the flowers begin to expand the plants should be taken to a cool house, where they will continue in bloom for many weeks. As they go out of flower water should be gradually withheld. They should then be allowed to go to rest, and be kept quite dry until the following spring, when they ought to be pruned back to four or five eyes, repotted, and put into heat, when they will soon show signs of growth. When they have made shoots about a foot long they should be shifted into pots large enough to flower in, and placed in a house where they can have plenty of light and air. They must be well attended to in watering, and the shoots ought to be kept neatly tied to stakes as they advance in growth. When they come into flower they should be taken to a cool house. After the blooming is over they should be gradually dried off, and rested during the winter as before.

I have seen *Erythras* in the south of England stand out of doors during the winter, without any protection whatever, and flower very finely in September. It is best, however, to plant in warm situations, and to cover the roots in winter with bark or ashes. *Erythras* also do well out of doors in the south of Ireland without any protection. In the north of England it is best to keep the plants in pots, winter them in-doors, start them early in spring, and plunge in the open borders in June, in sheltered situations. Here they do beautifully, and last a long time in flower.

Stourton.

M. SAUL.

CULTURE OF THE FUCHSIA.

IN growing Fuchsias young plants may be procured at any time from Christmas to August. If so late as August, they should be kept growing as late as November; but they must be sufficiently strong to endure going thoroughly to rest for a month or so, as circumstances may require, by being placed in a cool airy situation, and kept almost dry at the root. About January they must be introduced into a moderate heat, say about 55° . As soon as the buds appear shake the soil from the roots, and repot them into smaller pots, which should be either new or perfectly clean. Preserve the roots of the small plants; those of older ones can be slightly shortened. The soil should be prepared by being placed in some warm dry place, so that it may become gently warmed. Be particular about the drainage of the pots. Place a few small pieces of potsherd at the bottom of the pots, and add a thin layer of moss over them, to keep the soil separate. If this is not attended to, the drainage will become choked and the plant sickly; and, if this happens, they rarely recover themselves during the season.

Fuchsias are like Radishes—the quicker they are grown the better. Let the plants be potted carefully, placing the roots round the pots, and settling the soil well between the roots, pressing it down moderately firm, but leaving sufficient space for water on the top. After potting is finished, plunge the pots where the roots will have the benefit of a slight bottom heat of about 75° ,

till they get thoroughly into growth, after which they must be gradually removed. Keep them well syringed, and let the top heat range about 55° at night, and about 65° in the daytime. Be careful of damp, and by no means admit cold draughts nor use cold water; if so, the leaves will become brown, and the vigour of the plant will be gone.

Suppose cuttings to have been struck about the beginning of January, and to have been potted off and doing well. About the third week in February the question of stopping must be considered. One of the first objects in Fuchsia-growing should be to get the plants into a good shape when young, and this requires some consideration. There are some sorts very difficult to get up sufficiently high for specimens, but which if once got up will be sure to become bushy at the bottom afterwards, because they are naturally dwarf. Others that are strong growers, such as Prince Alfred or Exhibition, require a good deal of stopping when they are young. They must have their tops taken out when about 6 inches high, and four to six side branches must be tied out, by placing a piece of bass round the rim of the pot, and fastening the branches to it; these must be allowed to grow about 5 inches long before a centre shoot is again permitted to grow up; and when this centre shoot has grown from 6 to 10 inches more, it is to be stopped again, to give the side branches strength, and to give a better bottom to the plant. This kind of stopping is to be continued till the plant is so thick that you cannot see through it; and the top of the plant must by no means be allowed to outgrow the bottom—which indeed can easily be prevented by the simple process of taking out the centre of each shoot with a sharp-pointed knife. As the pots fill with roots the plants must be shifted into larger ones; they must never become pot-bound, as that would throw them into blossom. They must receive their last shift at least three months before they are required to be in bloom, and the stopping must be discontinued nine weeks before they are required for exhibition. It is important to keep a regular temperature, for no plant is more liable to injury from sudden changes of heat than the Fuchsia. Let the temperature range after the middle of March 5° higher than already mentioned; and as the season advances 5° more may be permitted, with plenty of moisture in the house. Always syringe twice a-day, and in hot weather very frequently, and keep plenty of water on the floors and staging when the ventilators are open. Give all the air possible in fine weather. As soon as the sun begins to give out much heat, the blinds must be put in requisition; they are very necessary in growing Fuchsias, but the very minute the sun is off the plants let the blinds be drawn up, for they require all the light possible.

Young plants, treated the first season as I have described, will make fine exhibition plants the second. Some sorts will do even the third, but they very seldom make creditable specimens after their second year.

About thirteen weeks before the show day the plants should have their last shift into 12-inch pots. The soil must be in good condition, and the pots clean and well drained with broken pots about an inch thick, and a layer of moss over them; then add about an inch of soil pressed down rather firmly, and all is ready for the plants to be turned into the blooming pots. Loop the branches up on one side to prevent breaking them; be sure the ball of the plant is thoroughly moist. Take out all the drainage, and place the ball carefully into the new pot, filling up all round, without injuring the roots. Keep the house moist and closed for a few days, and the sun from them, but be sure not to overwater them till they get hold of the new soil. In about three weeks they will be growing fast; then commence stopping, for the last time, by taking a few points out each day for a week. At this stage prepare the liquid manure

tub. Get some horse-droppings fresh from the stable, say about half a bushel to a barrel of rain water ; let these be mixed well together, and half a peck of soot added. When the liquid is clear let each plant have a small quantity, say about a pint, every three days, to be increased each week, but be sure not to give it too strong, or it will take all the flowers off. Apply it in the after part of the day with the regular water. Give the plants every encouragement to grow, and regulate the branches that may require it. The plants should each have a strong stake in the centre, to which the shoots should be well fastened. The bloom-buds will soon begin to appear, but the forward ones should be picked off till they appear regular all over the plant.

The plants are prepared for exhibition in this way : The day before the show a supply of stakes, thin paper, and Cuba bast must be got ready. Put the stakes in the soil, gather three or four bunches of bloom together, put the paper round them, and fasten the paper to the top of the stakes. All the blooms must be done in this way to make them travel well ; and if they are carefully tied, and three large nails driven into the bottom of the van round the bottom of each pot, the plants will travel any distance without damage. When they arrive at the show the paper has to be taken off, and the flowers will then look as fresh as they did before they started. Place them on the stage, the tallest at the back, and very much raised, if they are three deep, so that they may show themselves ; if only two deep, of course they will not require so much. Every flower must be made the most of. Let each pot be slightly pitched forward, and let every defective leaf and bloom be picked off, and the names plainly written. All is now ready for the first prize. As soon as the show closes, let them be carefully papered up again, and they will be little or none the worse for being shown to the public.

To get the first prize, the plants should have abundance of large blooms distributed regularly all over the plant. The blooms must be of a perfect shape, and the sorts distinct in colour. The foliage must be perfectly green, and free from dirt and insects. The plants must have health and vigour, so that they can throw out branches to give them a graceful and elegant appearance, and should be as nearly of the shape of a good specimen of *Cedrus deodara* as possible, with only one stake in the centre. Every plant should be of the same shape, and about the same size, so that they may have the appearance of having come out of one mould. The plants must be perfectly round, so that one side is as good as another. Let the blooms hang about 4 inches from the floor all round the pot, in which way the pot will be half-hidden by the plant. Plants in a 12-inch pot, when well grown, ought to be 5 to 6 feet high, and 4 to 5 feet through.

In the early part of the spring, Fuchsias are very much injured by what is commonly known by the name of the "spittle fly," and they must be well looked after. The only means I know to get rid of them is to catch them and kill them, for tobacco smoke has not the slightest effect on them. Green fly and thrips are easily got rid of in the ordinary way of fumigation with pure tobacco. I have tried many things recommended, but none answers so well as this. Two applications, one in each week, will remove them for a long time, if properly done.

The soil that I use is one part yellow decayed loam, one part leaf-mould, one part peat or heather soil, and one part well-decayed cowdung, with almost another of sharp silver sand, well mixed together two months before using.

HENRY CANNELL.

Woolwich.—(*Gardeners' Chronicle.*)

OUR MONTHLY CHRONICLE.

THE INTERNATIONAL HORTICULTURAL EXHIBITION has been the great event of the month, and the all-absorbing topic in the horticultural world. To it horticulturists have flocked from all parts of the world, and not a few gentlemen came from France, Belgium, and more distant parts of the continent to see the riches of British gardens, of which they had heard so much and seen so little. They were not disappointed, for never has there been in this or any other country a horticultural exhibition on such a scale and of such excellence as that which has just closed. The attempt was a bold one, for notwithstanding the considerable sum subscribed towards defraying the expenses of carrying it out, no one could be certain of its financial success; the weather might have proved unfavourable, or the Exhibition might not, in a time of commercial disaster at home and commotion abroad, have met with a due share of attention and favour; but happily the attempt was crowned with a success that far exceeded the most sanguine expectations of the promoters, for the Exhibition was not merely a splendid success in a horticultural, but also in a financial point of view, having been productive, we believe, of a considerable surplus. On the Saturday previous to the Show, in the vast tent there was little to be seen beyond the turfed banks prepared for the reception of the plants; a few Rhododendrons here, some Pinuses there; a lofty tree Fern at one point, and a lowly Moss at another; and there were not wanting those who predicted that the plants never could be arranged in time—it was an impossibility; but by Tuesday morning how marvellous the transformation, and how brilliant the scene! Looking from the elevation at the southern end of the tent the eye was arrested by glorious specimens of stove and greenhouse plants, by wonderful Azaleas—perfect pyramids of bloom, by masses of Pelargoniums, and by Roses such as even sunny France could not excel. Then there were tree Ferns, ranging from 20 to 30 feet in height, and with spreading heads half as much in diameter; Palms of many forms, and tropical in their character; Yuccas and Agaves near at hand, and in the distance sombre Yews and more lively Pines, relieved by gay flowering shrubs. Turn which way one would some fresh beauty met the eye, or new discovery was made. Faults there may have been in the arrangement—no one could reasonably expect it to be perfect when the time was so short, the mass of materials so great; but the general effect was such as to excite the admiration of even the least impressionable. Again, in the Orchid tent the display, though more confined in the area which the eye was enabled to comprehend, was of the richest; for there were gathered together the most beautiful of that lovely

family of plants, so varied and fantastic in form, so rich and diverse in colouring. Here, too, were Marantas with their leaves beautifully and variously banded and barred with different shades of colour, Caladiums powdered with vermilion or marbled with white, golden-flowered Japan Lilies, Bertolonias studded with pearls or with rubies, and many interesting novelties, chiefly from tropical countries.

The subjects exhibited were so numerous that our remarks on each class of them must necessarily be very brief. Flowering stove and greenhouse plants were an important feature, and without presenting anything very extraordinary in their character, were generally in great perfection. The collections of Mr. Baines, gardener to H. Micholls, Esq.; Mr. Peed, gardener to W. Leaf, Esq.; of Messrs. Lee, and of Mrs. Cole and Sons, were particularly worthy of notice, and comprised fine Ixoras, Heaths, Azaleas, Eriostemons, remarkably good specimens of *Acrophyllum venosum*, *Genethyllis tulipifera*, *Aphelaxis*, *Pimeleas*, and *Medinilla magnifica*. A very fine specimen of *Dracophyllum gracile*, with numerous fine heads of flowers, came among others from Mr. Rhodes. Fine-foliaged plants and Ferns were in very strong force, and comprised Crotons, *Rhopalas* of large size, *Alocasias*, variegated Aloe-leaved Yuccas, Marantas, *Dracenas*, *Seaforthia elegans*, *Latanias*, and other Palms; and of exotic Ferns there were many fine examples of *Dicksonia antarctica*, *Alsophila australis*, *Cibotiums*, *Gleichenias*, *Cyatheas*, and *Marrattia elegans*; but by far the most remarkable were the tree Ferns exhibited by Mr. Williams, of the Crystal Palace, and which averaged 24 feet in height and had heads 16 feet in diameter. The largest was a most noble specimen, not less than 30 feet in height. Of hardy Ferns several fine collections were shown; and those from Messrs. Ivery, of Dorking, and W. Marshall, Esq., were especially good; Messrs. Ivery also exhibited a number of new varieties. Azaleas as shown by Mr. Turner and Messrs. Veitch were magnificent, the plants being 7 or 8 feet in height and as much in diameter at the base. Roses from Mr. Turner and Mr. William Paul were in charming bloom, and those from the former were remarkable for their freshness and brightness of colour; good examples were also shown by Messrs. Francis, Lane, and Paul & Son, and Maréchal Niel from Mr. Mitchell of the Piltdown Nurseries, Maresfield, was an object of much admiration. The show of Pelargoniums was also magnificent, and being arranged in the circumference of the centre circle on turf banks, they formed a conspicuous part of the display. Mr. Turner and Mr. Fraser took the chief honours in the nurserymen's classes, both for show and fancy varieties, Mr.

Turner being first and Mr. Fraser second in the one; and in the other the positions were just reversed. Mr. Bailey, gardener to T. T. Drake, Esq., Shardeloes, who had remarkably fine specimens both of show and fancy varieties, took the lead in the amateurs' classes.

Orchids alone occupied 400 feet run of bank, and the collections of R. Warner, Esq., Broomfield, Mr. Bullen, gardener to A. Turner, Esq., Leicester, Messrs. Veitch and Sons, Mr. Williams, of Holloway, Mr. Penny, gardener to H. H. Gibbs, Esq., Regent's Park, and Mr. Wilson, gardener to W. Marshall, Esq., Enfield, were admirable, and there were also several very good collections from other exhibitors, though the plants were smaller. The new *Phalænopsis Lüddemanniana* was shown in several collections, and in one it had as many as nine blooms. It is evident that this charming introduction, as in the case of new Orchids generally, will, when it shall have gained strength, be seen in much greater perfection. Already it has manifested a great advance on what it was a few months ago, when it was exhibited before the Floral Committee at South Kensington as a weakly plant with smaller and far less richly coloured blooms. A representation of this beautiful *Phalænopsis* was given in our December Number. *P. Portei* was also shown in fine condition, and there were two remarkable examples of *Cypripedium caudatum*, with petals nearly 2½ feet in length; one of these came from Mr. Cullen, gardener to W. W. Buller, Esq., and another, from Mr. Wilson, had no less than nine flowers, and these of large size. Of *Cypripedium barbatum superbum* there were in Mr. Bullen's and Messrs. Veitch's collections examples having half a hundred blooms, whilst of *C. villosum* Messrs. Veitch had a plant with thirty. *Trichopilia crispa* and several richly coloured *Cattleyas* in Mr. Warner's collection were well worthy of special notice; and of *Vanda*, *Cypripedium*, *Saccolabium*, *Dendrobium*, and *Lælia* from various exhibitors there were numerous fine specimens. Nor should the beautiful *Odontoglossum Pescatorei* and *nævium* be passed over, for Messrs. Veitch had each with a score of blooms; and mention must also be made of *Cypripedium Stonei*, which was shown by Mr. Williams, with four of its finely-marked blooms, and the same exhibitor had beautiful *Anætochils* and other variegated Orchids.

Of Lycopods beautiful pans were exhibited by Messrs. Veitch, Mr. Barnard, gardener to J. W. Taylor, Esq., and Mr. Farbairn, gardener to the Duke of Northumberland, Sion. A new *Selaginella* from the Solomon Islands, shown by Messrs. Veitch, bore a remarkable resemblance to a pendulous-growing Conifer. Pitcher-plants from the same eminent firm were very fine, and so were the *Sarracenias*, exhibited by Mr. Williams.

Of other subjects, Pandanads, Cycads, Arads, Araliads, Marantads, Dracænas, Cala-

diums, and Anthuriums were all worthily and numerously represented, the Marantas being especially fine. Hardy trees and shrubs, including Conifers, Taxads, and Hollies, for which special classes were provided, were very numerously shown, and constituted not the least interesting part of the Exhibition; they chiefly came from Messrs Veitch, Lee, Paul and Son, W. Paul, Standish, Waterer and Godfrey, and Jackman, of Woking; and in addition there were fine standard Bays, Hollies, Box, Portugal Laurels, and Yews; also a fine pair of standard Myrtles from Mr. Bull.

Some plants of *Eucharis amazonica* from Mr. Howard, gardener to E. Brand, Esq., Balham, were very remarkable for their great size and luxuriance of growth. They measured about 5 feet across, and their white blossoms were nearly 4 inches in diameter. The plants, it was stated, when purchased two and a half years ago were in three-inch pots, had been kept continually growing in bottom heat in a stove, shifted into larger pots when necessary, and liberally supplied with manure water. Lilies of the Valley with variegated leaves, admirably grown and bloomed, were shown by Mr. Salter, and *Aucubas* crowded with coral red berries by Messrs. Lee. The *Ailanthus* silkworm feeding on the tree, together with specimens of the silk, was exhibited by Lady Dorothy Nevill, to whom we owe its introduction into this country, and a knowledge of its value.

Fruit was not shown very largely, but was generally very good. Pines were few in number, and the best were the Queens from Mr. Cameron, gardener to the Duke of Richmond, at Goodwood, and Smooth-leaved Cayennes from Mr. Barnes, of Bicton, and Mr. Page. Grapes were very good, especially Black Hamburgs, Black Prince from Mr. Hill, Muscat of Alexandria from Mr. Turner, Buckland Sweetwater, and Golden Hamburg. Messrs. Lane's Vines in pots were fine examples of that mode of culture, and were loaded with large bunches. Peaches, Nectarines, Cherries, and Strawberries, though each well represented as regards quality, were not numerous; but of Apples there were several collections of finely-grown fruit in excellent preservation. A bunch of *Musa Cavendishii* weighing, it was stated, 76 lbs., was exhibited by Mr. Carr, gardener to P. L. Hinds, Esq., Byfleet, and *Dion edule* by Mr. Taylor, gardener to J. Yates, Esq., Highgate; besides which, in the various departments of the Show there were a number of interesting objects exhibited, to which we may return on a future occasion.

The returns of the number of visitors have not yet been made up, nor has the amount of receipts been completely ascertained; but up to Saturday, the 26th, upwards of £5200 had been received in payment at the doors, exclusive of the amount realised by the sale of tickets through numerous agents.

BANQUET AT GUILDHALL.—On the evening of the opening day of the Exhibition a grand banquet took place at the Guildhall, at which the Right Hon. the Lord Mayor presided. Upwards of 550 were present, and amongst them were Viscount Powerscourt; Sir Broke Middleton, Bart.; Right Hon. R. C. Nisbet Hamilton; M. A. De Candolle, of Geneva; Professor Koch, of Berlin; Professor Reichenbach, of Hamburg; Professor Caspary, of Königsberg; Professor Morren, of Liège; M. Schulz Bipontinus, of Deidesheim; M. Meissner, of Basle; M. Weddel, of Poitiers; M. Van Houtte, of Ghent; M. A. Verschaffelt, of Ghent; M. Linden, of Brussels; Sir Wentworth Dilke, M.P.; Dr. Hogg, Dr. Maxwell Masters, Mr. Kelk, M.P.; Mr. J. Clutton, Mr. Sheriff Gibbons, Mr. Alderman Besley, Mr. Pender, Mr. E. A. Bowring, C.B.; Mr. Micholls, Mr. Samuel Morley, Mr. George Godwin, F.R.S.; Mr. J. J. Blandy, Mr. W. H. Dixon; Mr. G. W. Johnson; Mr. T. Moore; Messrs. Veitch, Lee, Standish, Bull, Williams, Paul, Waterer, Low, Wendland, Fortune, and Captain Walker. After the usual loyal toasts had been given and enthusiastically received, Sir C. Wentworth Dilke, Bart., M.P., proposed the health of the foreign visitors and the President of the Botanical Congress, and Professor De Candolle, in responding, returned thanks in his own name and that of the other foreign visitors, for the kindly welcome which they had received both in public and private, and regretted that the disturbed state of affairs on the Continent had prevented many gentlemen from abroad, who would otherwise have been present, quitting their homes. He then congratulated his hearers on the prosperous state of the sciences, and particularly that of horticulture, of which the International Horticultural Exhibition of this year furnished a proof; and he expressed a hope that similar gatherings would be instituted in the east and south of Europe. The Right Hon. R. C. Nisbet Hamilton, Dr. Hogg, and the Lord Mayor having also spoken, and some other toasts having been given, the company broke up.

DINNER AT ST. MARTIN'S HALL.—This took place on Thursday, the 24th of May, when upwards of five hundred horticulturists and their friends sat down to dinner. Lord Henry Gordon Lennox, M.P., presided, and among those present were Sir C. Wentworth Dilke, Bart., Sir W. Stirling, the Rev. Joshua Dix, Rev. S. R. Hole, Dr. Hogg, Dr. Moore, Mr. G. F. Wilson, Mr. T. Moore, Mr. W. Paul, Mr. J. Lee, Mr. J. G. Veitch, Mr. C. Turner, Mr. A. Dickson, of Chester, and M. Van Geert. The Chairman, in proposing the toast of the evening—"Success to the Horticultural Exhibition and the Botanical Congress," made an excellent

speech, which was listened to with much attention; and Mr. W. Paul, Rev. J. Dix, Sir C. W. Dilke, and others also spoke, but space will not admit of further details here.

DÉJEUNER AT MESSRS. VEITCH'S.—Before commencing the formal business of the Congress on Wednesday, the foreign botanists and gardeners were invited by Messrs. Veitch to a magnificent déjeuner at the Royal Exotic Nurseries, Chelsea. The foreign guests were met by a distinguished company of their English confrères, and the occasion was one of much interest. Among the principal visitors were—Professor Lecoq; Professor Triand, of Paris; Professor Koch, of Berlin; Professor Morren, of Liège; Dr. Reichenbach, of Hamburg; M. Barillet, Paris; M. Vilmorin, Paris; M. Pepin, delegated by the French Government; M. Sello, Potsdam; M. Nisson, Naples; Baron Osy, Antwerp; M. Linden, Brussels; M. Van den Hecke; M. Willink, Amsterdam; M. Krelage, Haarlem; Viscount Forceville; Sir Wentworth Dilke, Bart.; Sir D. Cooper, Bart.; Rev. Joshua Dix; Rev. Mr. Berkeley; J. McNab, Esq., Edinburgh; Dr. Moore, Dublin; Dr. Hogg; Dr. Masters; G. Eyles, Esq.; J. Liddell, Esq., &c. Mr. Veitch, senior, presided. The visitors inspected Messrs. Veitch's valuable collection of plants, the most notable of which, however, were being exhibited at the Show. The whole occasion was marked by the most cordial feeling, and was a matter of much gratification to those present. Each guest, on leaving, entered his signature in a book, and received from Mr. Veitch his carte-de-visite as a souvenir.

BOTANICAL CONGRESS.—Two meetings of the Congress were held at the South Kensington Museum, the first on Wednesday, the 23rd, on the evening of which day a brilliant conversation was also held; and the second on the following Thursday. Several interesting papers were read, of which we hope to give some account hereafter. On the opening day (Wednesday), Professor De Candolle delivered the following inaugural address:—

In order to derive the full advantage from a meeting of so many lovers of science, horticulturists and botanists, brought together from all parts of Europe, it is necessary that the common object for which they have met should be perfectly understood.

It devolves on me, who am called upon to preside (an honour of which I feel myself unworthy), to point out the bond which unites us, and of which, perhaps, you have at present but a vague, and, so to speak, an intuitive perception.

In my opinion, we are not here merely as amateurs to satisfy our curiosity. The proof of which is, we are here assembled to listen to discussions, instead of wandering about the fairy-like garden of the Exhibition. Evidently we seek something more than a mere show, and that something is, in my opinion,

instruction. It is not sufficient for horticulturists merely to see—they must also study and reflect. Neither is it sufficient for botanists to observe details minutely; they must also see the plants on a large scale, and in grouped masses. The connection of Practice with Theory, and of Art with Science, is acknowledged to be indispensable; and in accordance with this prevalent opinion we here affirm, by our presence in this room, the necessary union of Botany and Horticulture. The aim of my brief observations will be to call to mind how they aid each other, and to show how much more they might do so. If I am not mistaken, it will follow from facts to which I shall allude, that our united efforts, scientific or practical, modest though they appear, contribute to increase the well-being of man in all conditions and in all countries.

FIRSTLY, THE ADVANTAGES OF HORTICULTURE TO BOTANY.—Let us first mention the services that horticulture renders, or may render, to botany. Without being myself a horticulturist, I affirm or recognise them willingly, the advancement of science rendering it necessary to have recourse to all its collateral branches.

We no longer live in those times of illusion when botanists merely occupied themselves with European plants, or with a few from the East, and, from a spirit of caution rather than from ignorance, pictured to themselves all distant countries as possessing much the same general vegetation, with a few uncommon or exceptional species. A century of discovery has made known the extreme variety in the Floras, the restricted limits of many species, and the complicated entanglement of their geographical distribution. To see all the different forms of vegetation of the world, one would realise in a degree the history of the Wandering Jew; besides, with this constant travelling, where would be the opportunities for that reflection or study which create true science?

The traveller is too much exhausted in warm countries, too distracted in those temperate regions favourable to active life, and his faculties are too much benumbed in the colder regions, to enable him to devote himself to minute researches with the lens or the microscope, or even to sketch or properly describe that which he has gathered. He sees, in passing, a crowd of things, but he can scarcely ever stop to enter into details, especially of those that come in rapid succession. Rarely can he see the fruit and flower of a species at the same time, and it is quite impossible for him to study their complete development during the whole year. The notes taken by the most intelligent naturalist are so affected by these fatal circumstances, that it is seldom they add anything to that which a dried specimen can teach the sedentary botanist.

It is horticulture, then, which brings before us a multitude of exotic plants in a condition

best adapted for study. Thanks to the variety of species it accumulates and successfully cultivates, the botanist can investigate the most difficult questions, and pursue his researches in families whose genera are not indigenous in Europe. In the herbarium, more minute observations can be made than is generally supposed; nevertheless, for certain researches, it is absolutely necessary to have the living plant, particularly for those relating to relative disposition, the origin and development of the several organs, as well as for studying the curious phenomena of fertilisation, the movements and direction of the stem, leaves, and parts of the flowers. Horticulture has done much to advance the progress of physiological botany, but it still has much to do. The most remarkable experiments of physiologists—viz., those of Hales, Duhamel, Knight—have been made in gardens. Also, the long series of experiments of the younger Gaertner, and, more recently, of M. Naudin, on hybridisation, which relate to the cardinal subject of the species. As much may be said of the numerous trials which are made, in horticultural establishments, to obtain new races or varieties. These have a great scientific importance, and it is undoubtedly the horticulturists who are the teachers of botanists on these subjects.

It appears to me, however, that gardens can be made still more useful in carrying out physiological researches. For instance: there is much yet to be learnt on the mode of action of heat, light, and electricity upon vegetation. I pointed out many of these deficiencies in 1855, in my "*Géographie Botanique Raisonnée*."* Ten years later, Mr. Julius Sachs, in his recently published and valuable work on physiological botany,† points out much the same deficiencies, notwithstanding that some progress has been made in these matters. The evil consists in this, that when it is desired to observe the action of temperature, either fixed or varied, mean or extreme, or the effect of light, it is exceedingly difficult, and sometimes impossible, when observations are made in the usual manner, to eliminate the effects of the constant variations of heat and light. In the laboratory it is possible to operate under more exactly defined conditions, but they are rarely sufficiently persistent; and the observer is led into error by growing plants in too contracted a space, either in tubes or bell-glasses. This last objection is apparent when it is wished to ascertain the influence of the gases diffused in the atmosphere around plants, or that of the plants themselves upon the atmosphere.

Place plants under a receiver, they are no longer in a natural condition; leave them in the open air, and the winds and currents, produced at each moment of the day by the tem-

* Pages 46, 49, 57, and 1346.

† "*Handbuch der experimental-physiologie der pflanzen*," 1 vol. in 8vo. Leipzig, 1865.

perature, disperse the gaseous bodies in the atmosphere. Every one is aware of the numerous discussions concerning the more or less pernicious influence of the gases given off from certain manufactories. The ruin now of a manufacturer, now of a horticulturist, may result from the declaration of an expert; hence, it is incumbent on scientific men not to pronounce on these delicate questions without substantial proof.

With a view to these researches, of which I merely point out the general nature, but which are immensely varied in details, I lately put this question*—"Could not experimental greenhouses be built, in which the temperature might be regulated for a prolonged time, and be either fixed, constant or variable, according to the wish of the observer?" My question passed unnoticed in a voluminous work where, in truth, it was but an accessory. I renew it now in the presence of an assembly admirably qualified to solve it. I should like, were it possible, to have a greenhouse placed in some large horticultural establishment or botanic garden, under the direction of some ingenious and accurate physiologist, and adapted to experiments on vegetable physiology; and this is, within a little, my idea of such a construction:

The building should be sheltered from all external variations of temperature; to effect which, I imagine it should be in a great measure below the level of the ground. I would have it built of thick brickwork, in the form of a vault. The upper convexity, which would rise above the ground, should have two openings—one exposed to the south, the other to the north—in order to receive the direct rays of the sun or diffused light. These apertures should each be closed by two very transparent glass windows, hermetically fixed. Besides which, there should be, on the outside, means of excluding the light, in order to obtain complete darkness, and to diminish the influence of the variations of temperature when light was not required. By sinking it in the ground, by the thickness of its walls, and by the covering of its exterior surfaces with straw, mats, &c., the same fixed degree of temperature could be obtained as in a cellar. The vaulted building should have an underground communication with a chamber containing the heating and the electrical apparatus. The entrance into the experimental hothouse should be through a passage closed by a series of successive doors. The temperature should be regulated by metallic conductors, heated or cooled at a distance. Engineers have already devised means by which the temperature of a room, acting on a valve, regulates the entry or exit of a certain amount of air, so that the heat regulates itself.† Use

could be made of such an apparatus when necessary.

Obviously, with a hothouse thus constructed, the growth of plants could be followed from their germination to the ripening of their seeds, under the influence of a temperature and an amount of light perfectly definite in intensity. It could then be ascertained how heat acts during the successive phases from sowing to germination, from germination to flowering, and from this on to the ripening of the seed. For different species various curves could be constructed to express the action of heat on each function, and of which there are already some in illustration of the most simple phenomena, such as germination,* the growth of stems, and the course of the sap in the interior of certain cells.† We should be able to fix a great number of those minima and maxima of temperature which limit physiological phenomena. Indeed, a question more complicated might be investigated, towards the solution of which science has already made some advances—namely, that of the action of variable temperature; and it might be seen if, as appears to be the case, these temperatures are sometimes beneficial, at other times injurious, according to the species, the function investigated, and the range of temperature. The action of light on vegetation has given rise to the most ingenious experiments. Unfortunately, these experiments have sometimes ended in contradictory and uncertain results. The best ascertained facts are, the importance of sunlight for the development of the green colouring matter, the decomposition of carbonic acid gas by the foliage, and certain phenomena relating to the direction or position of stems and leaves. There remains much yet to learn upon the effect of diffused light, the combination of time and light, and the relative importance of light and heat. Does a prolonged light of several days or weeks, such as occurs in the Polar Regions, produce in exhalation of oxygen, and in the fixing of green matter, as much effect as the light distributed from twelve to twelve hours, as at the Equator? No one knows. In this case, as for temperature, curves should be constructed, showing the increasing or diminishing action of light on the performance of each function; and as the electric light resembles that of the sun, we

hibited at Chiswick in 1857, figured in the "Flore des Serres et Jardins," vol. xii. Miscell. p. 184.

* Germination under different degrees of constant heat, by Alph. de Candolle, in the "Bibliothèque Universelle de Genève" (Archives des Sciences), November, 1865.

† If the curves have not been constructed, the data for their construction are, at least, dispersed throughout our books. I will cite, for instance, the growth of a scape of *Dasyllirion*, as observed by M. Ed. Morren ("Belgique Horticole," 1865, p. 322). The figures there given are not favourable to the accepted notion, that the growth of tissues is more active by night than by day.

* "Géographie Botanique," 1855, pages 49 and 1346.

† See the electric apparatus of M. Carbonnier, ex-

could in our experimental hothouse submit vegetation to a continued light.*

A building such as I propose would allow of light being passed through coloured glasses or coloured solutions, and so prove the effect of the different visible or invisible rays which enter into the composition of sunlight. For the sake of exactness nothing is superior to the decomposition of the luminous rays by a prism, and the fixing the rays by means of a heliostat. Nevertheless, a judicious selection of colouring matters, and a logical method of performing our experiments, will lead to good results. I will give as proof, that the recent most careful experiments concerning the action of various rays upon the production of oxygen by leaves, and upon the production of the green colouring matter, have only confirmed the discoveries made in 1836, without either prism or heliostat, by Professor Daubeny,† from which it appears that the most luminous rays have the most power, next to them the hottest rays, and lastly those called chemical.

Dr. Gardner in 1843, Mr. Draper immediately after, and Dr. C. M. Guillemin in 1857,‡ corroborated by means of the prism and the heliostat the discovery of Dr. Daubeny, which negatived the opinions prevalent since the time of Senebier and Tessier, and which were the result of erroneous experiments. It was difficult to believe that the most refrangible rays—violet for instance, which acts the most on metallic bodies—as in photometrical operations, should be precisely those which have least effect in decomposing the carbonic acid gas in plants, and have the least effect over the green matter in leaves. Notwithstanding the confirmation of all the experiments made by Dr. Daubeny, when repeated by numerous physicists and by more accurate methods, the old opinions, appearing more probable, still influenced many minds,§ till Mr. Julius Sachs,

* The apparatus which produces the most persistent and vivid light is the magneto-electric machine, based on the development of induction by magnetism, as discovered by the illustrious Faraday. The galvanic pile is replaced by a steam-engine of low power, which sets in motion a wheel furnished with magnets ("Bibl. Univ. de Genève, Archives Scientif., 1861, v. 10, p. 160."). The working of this machine is expensive; but unfortunately, the magnets are very costly. This system has already been applied to two lighthouses—that at the South Foreland, and to that of the "Société l'Alliance," at Havre—in consequence of the experiments of MM. E. Becquerel and Tresca.

† Daubeny, "Philos. Trans.," 1836, part 1.

‡ Dr. Gardner, "Edinb. Phil. Mag.," 1844, extract in French in "La Biblioth. Univ. de Genève," February, 1844; Draper, "Edinb. Phil. Mag.," September, 1844, extract ib., 1844, vol. 54; Guillemin. (C. M.), "Ann. Sc. Nat.," 1857, ser. 4, vol. 7, p. 154.

§ As a proof of the persistence of the old opinion, I will quote a phrase of Professor Tyndall's in his most clear and interesting treatise "On Radiation," (London, 1865), p. 6:—"In consequence of their chemical energy, these ultra-violet rays are of the utmost importance to the organic world." I do not know whether the author had in view the influence

in a series of very important experiments again affirmed the truth.* It is really the yellow and orange rays that have the most power, and the blue and violet rays the least, in the phenomena of vegetable chemistry; contrary to that which occurs in mineral chemistry, at least in the case of chloride of silver. The least refrangible rays, such as orange and yellow, have also the twofold and contrary property, such as pertains also to white light, and which produces the green colouring matter of leaves or bleaches them, according to its intensity. It is these, also, which change the colouring matter of flowers when it has been dissolved in water or alcohol.† Those rays called chemical, such as violet, and the invisible rays beyond violet, according to recent experiments, confirmatory of those of ancient authors—those of Sebastian Poggioli, in 1817, and of C. M. Guillemin—have but one single well-ascertained effect, that of favouring the bending of the stem towards the quarter from which they come more decidedly than do other rays; yet that is an effect perhaps more negative than positive, if the flexure proceeds, as many still believe, from what is going on on the side least exposed to the light.‡

The effect upon vegetation of the non-visible calorific rays at the other extremity of the spectrum have been but little studied. According to the experiments we have on this subject, they would appear to have but little power over any of the functions; but it would be worth while to investigate further the calorific regions of the spectrum by employing Dr. Tyndall's process—that is, by means of iodine dissolved in bisulphide of carbon, which permits no trace of visible light to pass.

How interesting it would be to make all these laboratory experiments on a large scale! Instead of looking into small cases, or into a small apparatus held in the hand, and in which the plants cannot be well seen, the observer would himself be inside the apparatus, and could arrange the plants as desired. He might observe several species at the same time, plants of all habits, climbing plants, sensitive plants, those with coloured

of the chemical rays over the animal kingdom; but according to certain passages of Mr. Sachs, I doubt if they have more power over animals than they have over plants; but Professor Tyndall did not concern himself with these questions, he was content to explain admirably the physical nature of the various rays.

* The researches of Mr. Sachs first appeared in the "Botanische Zeitung;" they are collected and condensed in the remarkable volume called "Handbuch der Physiologischen Botanik," vol. 4, Leipsig, 1855, p. 1 to 46.

† Sir John Herschell, "Edinb. Philos. Journ.," January, 1843.

‡ The rather confused and questionable explanations, founded on the notions of Dutrochet, of the existence of a deoxidising power on the brightest side, clash with the fact that the blue, indigo, and violet rays, the least powerful for deoxidising tissues, are the most powerful in causing them to bend.

foliage, as well as ordinary plants. The experiment might be prolonged as long as desirable, and, probably, unlooked-for results would occur as to the form or colour of the organs, particularly the leaves.

Permit me to recall on this subject an experiment made in 1853 by Professor Von Martius.* It will interest horticulturists now that plants with coloured foliage are becoming more and more fashionable. M. Von Martius placed some plants of *Amaranthus tricolor* for two months under glasses of various colours. Under the yellow glass the varied tints of the leaves were all preserved. The red glass rather impeded the development of the leaves, and produced, at the base of the limb, yellow instead of green; in the middle of the upper surface, yellow instead of reddish-brown; and below, a red spot instead of purplish-red. With the blue glasses, which allowed some green and yellow to pass, that which was red or yellow in the leaf had spread, so that there only remained a green border or edge. Under the nearly pure violet glasses, the foliage became almost uniformly green. Thus, by means of coloured glasses, provided they are not yellow, horticulturists may hope to obtain at least temporary effects, as to the colouring of variegated foliage.

The action of electricity on vegetation is so doubtful, so difficult to experiment upon, that I dare hardly mention it; but it can easily be understood how a building constructed as proposed might facilitate experiments on this subject. Respecting the action of plants on the surrounding air, and the influence of a certain composition of the atmosphere upon vegetation, there would be by these means a large field open for experiments. Nothing would be easier than to create in the experimental hothouse an atmosphere charged with noxious gas, and to ascertain the exact degree of its action by day and by night. An atmosphere of carbonic acid gas might also be created, such as is supposed to have existed in the coal period. Then it might be seen to what extent our present vegetation would take an excess of carbon from the air, and if its general existence were inconvenienced by it. Then might be ascertained what tribes of plants could bear this condition, and what other families could not have existed, supposing the air had formerly had a very large proportion of carbonic acid gas.

Until horticulture can supply physiology with such convenient means of experiment, it, in the meantime, advances descriptive botany by the valuable publications it issues. The greater part of the old works with plates, such as "*Hortus Eystettensis*," "*Hortus Elthamensis*," &c.; also those of Ventenat, Cels, Redouté, &c.; the "*Salictum*" and

"*Pinetum*" of the Duke of Bedford; and, more recently, the "*Rhododendrons of the Himalaya*," by Dr. Hooker; the works of Bateman, Pescatore, Reichenbach, on Orchids; and many others I could name, would never have been published had there not been rich amateurs either to edit or to buy them.

It is horticulture that has given us the longest series of illustrated journals that have ever been published; and here I must do justice especially to the English horticulturists. No doubt the science of our time requires a larger amount of analytical details than is contained in the plates of the "*Botanical Magazine*," "*Botanical Register*," "*Andrews' Repository*," "*Loddige's Botanical Cabinet*," "*Sweet's British Flower Garden*," "*Paxton's Magazine and Flower Garden*," and other English journals; but what a number of forms are thus fixed by the engravings in these books, and what a fund of valuable documents for consultation they afford! One cannot fail to admire the "*Botanical Magazine*," commenced in 1793, continued from month to month with an exemplary regularity, and which is now at its 5580th plate. Not only has it always represented rare and new species, but it has ever been conducted on a simple and uniform plan, which renders it convenient to consult.

The series of plates is unique from the very beginning. Each plate has its number, and each article of letter-press refers only to one plate, by which means the quotations from the work are rendered brief and clear. Many editors have not understood the advantage of this simple arrangement. They have varied their titles, their series, their pagings; they have affixed to their plates numbers, then letters, then nothing at all; the end of which is (and this ought to serve as a warning for the future), that the more they have altered and complicated the form of their journals, the shorter time they have lasted.

How is it that these purely bibliographical details cause in us such sad recollections? Of the men just mentioned, who have rendered such eminent service to botany and horticulture, England has lost three during the year 1865—Sir Joseph Paxton, Dr. Lindley, and Sir William Jackson Hooker.* I should certainly fail in what is expected of me if I did not express, in the name of the foreigners attending this meeting, our deep regret at such serious losses. We know them all by their writings, and many amongst us have known personally the distinguished men I have mentioned. Their names follow us at each step in this the scene of their labours. If we admire the boldness of construction

* Since these lines were in the printer's hand British science has sustained a severe loss in the death of the truly amiable and learned Professor W. Harvey, of Dublin, so well known by his works on Algae, and on the Botany of South Africa. I cannot refrain from expressing our sense of this great bereavement.

* "*Gelehrte Anzeige*," München, 2 Dec., 1853.

of the iron domes that characterise modern buildings, we think of the Crystal Palace, of Chatsworth, and of the humble gardener who became a great architect. If we visit the beautiful establishment at Kew, we see everywhere around us proofs of the indefatigable activity of Sir William Hooker. Lastly, if we ask the origin of the garden of the Royal Horticultural Society at Kensington, we are told that it is only a development of that at Chiswick, where Lindley stood pre-eminent by his knowledge and his energy; and of that Society where botanists of my age found in their youth such valuable encouragement in their studies.

The names of Sir William Hooker and of Dr. Lindley, thanks to their special works, will ever remain distinguished in science. These two botanists have, moreover, been directors of horticultural journals, and of great horticultural establishments, and since their influence has been so fully acknowledged by practical men, I shall have little trouble in showing that science is as useful to horticulturists as horticulture is to botanists, and this will form the second part of my discourse.

SECONDLY.—THE ADVANTAGE OF BOTANY TO HORTICULTURE.—The principles of vegetable physiology are what horticulturists and agriculturists usually study in books on botany. They do not always find direct answers to their questions; but they can draw from them certain rules, certain ways of experimentalising and reasoning, which save them from falling into many errors. Should some ridiculous idea be promulgated by some ignoramus or charlatan, it is by an appeal to the general rules of physiology that a practical man may at once reject them, or at least hold them in distrust. On the contrary, innovations, if in harmony with the general principles of the science, may be, and I will even say, ought to be readily accepted.

Do not let us put too much faith in the lucky results of experiments made absolutely by chance. It is with some of these experiments as with dreams and presentiments—if they come true once in a thousand times they are talked about, otherwise they are passed over and forgotten. Besides, it must be said, men nearly always are guided by theories; but the theories of the ignorant are often absurd and without foundation, whilst those of educated men are based on probabilities, or on an accumulation of facts.

Conjointly with physiology, botanical geography shows the distribution of plants all over the globe, their struggle with the elements, their migrations, and already raises a portion of the veil which covers the obscurity of their origin. All this ought to offer a real interest to horticulturists. We are beginning to have the power of expressing in figures the effect of each climate upon vegetation; consequently the possibility of a given species

enduring the mean or extreme climatal conditions of that country to which it is desired to introduce it. Already we can show, in the clearest manner, the analogy between the vegetation and climate of certain regions widely separated the one from the other, and point out in which cases new attempts at cultivation should be tried or where they should be discouraged. A celebrated geologist was able to say beforehand, There is gold in such a part of New Holland; and gold was found there. We can only say, the Olive tree and the Cork Oak will succeed in Australia; the eastern and temperate region of the United States is favourable to the growth of Chinese plants, more particularly to that of Tea; and we can assert that that part of America included between San Francisco and the Oregon territory will, one day, supply wines as varied and as excellent as those European ones produced between Portugal and the Rhine.

It is a singular fact that the two principal beverages of the civilised world, wine and tea, which produce similar stimulating effects, but which to a certain extent are the substitutes one for the other in different countries, present also in the mode of cultivating them the most marked resemblances and differences. The Vine and the Tea-plant succeed on stony, barren hill sides, of which they sometimes increase the value a hundredfold. According to the exposure, the soil, the cultivation and manner of preparing the produce, wine and tea are obtained of unquestionable excellence; whilst the neighbouring crops, but a short distance off, may be more or less ordinary in quality. The two shrubs require a temperate climate, but the Vine needs heat and no rain during summer, whilst the Tea-plant requires rain and but little summer heat; the result of which is, that these two species are almost geographically incompatible. Vine-growing countries will never produce tea, and *vice versa*.

But, you will say, these examples belong rather to agriculture, and concern neither botany nor gardens. I maintain the contrary. It is science, in the present day, which points out what plants to cultivate, and into what countries to introduce them. Horticulture makes the trial with infinite pains. If successful, the young plants are submitted to the less careful treatment of agriculture. Before the happy introduction of Cinchonas into British and Dutch India could be effected, botanists were required to collect, distinguish, and carefully describe the various species of American Cinchonas; horticulturists were then called on to make cuttings, gather the seeds, raise the young plants, transport and establish them in another part of the world; and so at last they were passed over to the care of the agriculturist. The Coffee plant did not spread gradually from Arabia to India, from India to Java; nor was it the American colonists who bought it from its original

country to their *fazendas* or *haciendas*. The shrub was first described by botanists, and was afterwards introduced by the Dutch into a garden at Batavia; from thence it was taken to the Botanical Garden at Amsterdam, from whence a specimen was sent to the king of France in 1714. De Clieu, a naval officer, transplanted it from the garden at Paris to the French colonies in America. A multitude of such instances might be named. In the present day science has progressed, practical men avail themselves of it, governments and nations have abandoned those mistaken ideas in accordance with which it was supposed that a cultivation advantageous to one country was injurious to others. Hence we may hope to see, before long, useful species planted in all regions where they can thrive, to the great advantage of mankind in general.

One of the most evident effects of science has been to create in the horticultural public a taste for varied and rare forms. Formerly in gardens there were only to be found certain kinds of plants which dated back to the time of the Crusades, or even of the Romans. The discovery of the New World did not produce a change in proportion to its importance; perhaps because horticulturists did not travel enough, or acquaint themselves with those countries whose species were most suitable for cultivation in Europe. Botanists, fortunately, were more ambitious. Their collectors were numerous and daring. They enriched their herbaria with an infinitude of new forms, and published works upon exotic plants, such as those of Hernandez, Rumphius, Sloane, &c. The immense variety in the forms of plants was thenceforth recognised, and in point of taste the elegant simplicity of the primitive flowers was able to vie with the gaudiness of the double ones. Then ceased the reign of Tulips and Pæonies in flower gardens. Curiosity, that great incentive to all science, having penetrated horticulture, the change in gardens became rapid. Instead of a few hundred species such as were cultivated at the commencement of the last century, there are now 20,000 or 30,000 to be found in most of the present catalogues. The single family of Orchids has probably more different representatives in our hothouses than was the case with all the families of plants put together a hundred years ago. Fashion, united to the present curiosity of amateurs, causes, from time to time, old plants to be abandoned for new ones; and thus the entire vegetable kingdom will ultimately pass under the observation of civilised man.

What would horticulturists do, amidst this invasion of thousands of species, had not botanists devised convenient plans of classification and nomenclature? The families, genera, and species, have all been arranged in books, just as the districts, streets, and numbers of the houses are in our great capitals—with this superiority of method, that the form

of the objects indicates their place—as if, in looking at a house in a town, one could discover, at a glance, to what street and to what quarter it belonged. The plan of giving a single name to each species besides its generic name, together with the prohibition of changing names without due reason, and of giving the same appellation to two different species, or to two genera, far excels our plan of distinguishing individuals. How much it would simplify our intercourse with men, and facilitate our inquiries, if, in the whole world, the members of one family only bore the same name, and if each individual had but one christian name, differing from those of the other members of his family. Such is, nevertheless, the admirable plan of nomenclature that science has provided for horticulturists, and which they cannot too much appreciate and respect.*

THIRDLY.—THE BENEFICIAL EFFECTS OF THE ASSOCIATION OF BOTANY WITH HORTICULTURE.—The pursuit of horticulture demands books and herbaria, as that of scientific botany requires cultivated living plants. Thence the necessity, which is more and more recognised, of bringing together the materials for comparison in the same town, the same establishment, and even under the same administration, organised so as to facilitate the use of them. How many institutions in Europe, either private or public, would be benefited by this arrangement! How many towns and countries are now deficient—some in libraries, some in herbaria, some in respect to horticulture! Professional men proffer their complaint; let us hope that public opinion may end by listening to them.†

The bringing together the means of study, I have said, is desirable. Not less so is the interchange of ideas and impressions, both of botanists and horticulturists. Each of these classes must clearly have distinct characteristics; but the one should be influenced by the other. By these means, some too-retiring dispositions may be brought out, and certain

* Two years ago I made a request to the Fédération des Sociétés d'Horticulture Belges, which appears to have been favourably received, and it may not be useless to repeat it here. It consisted in begging the horticulturists who obtain new varieties not to give them botanical names with a Latin designation, but merely arbitrary names of quite a different nature, in order to avoid confusion and useless researches in books. For example, if they called a *Calceolaria* Sebastopol, or Triomphe de Gand, every one would understand it meant a garden variety; but if they named it *Lindleyi*, or *mirabilis*, the student would take it to be a botanical species, and would search for it in scientific works, or in the Floras of Chili; and botanists, happening perhaps to mistake it, would add it to the end of the genus in their books as a species imperfectly known. The more horticultural names differ from Latin ones, the better it is, unless they can be appended to the scientific nomenclature: as when we say *Brassica campestris oleifera*, instead of, shortly, Colza.

† The Botanical Gardens at Kew afford a fine example of what should be done, either on a large or a more modest scale, in many towns where the means of study are yet inconvenient or incomplete.

dormant powers developed. Horticulture, for instance, has a commercial tendency which may be carried too far. Charlatanism may slide in amongst flowers. Botany, on the contrary, is a science, and consequently rests on the investigation of pure and simple truth. A horticulturist who allows himself to be influenced by a scientific spirit, necessarily frees himself from over-selfish tendencies. Natural history, on its side, by reason of the perfection of its method, its nomenclature, and its minute observations, has something technical and dry about it, which contrasts with the grandeur of nature and the sentiment of art. It is for horticulture, combining as it does the planning and the decorations of gardens, to develop the æsthetic faculties of the savant, as of the world in general. A lovely flower, beautiful trees, a splendid floral exhibition, excite a sort of admiration and even enthusiasm, similar to the effects produced by music or painting.

The powers of the German composers of modern days, and those of the Italian painters of the sixteenth century, are justly extolled; but may it not also be said that in point of

art they are equalled, in their way, by the beautiful parks of old England? The feeling of harmony in form and colour, is it not also studied in them? The effect of contrast, is it not skilfully managed? The gradual transition from architectural to natural beauties, is it not treated in an admirable manner? Yes; decidedly the English landscape gardeners are poets; they have drawn from the same sources of inspiration as the most national writers of their country, and that source is the appreciation, so universal in England, of the beautiful, in an aspect of nature which is elegant and attractive, though somewhat severe.

Thus, gentlemen, for the development of our talents, as well as for our actual benefit, Art and Science keep pace together. Let us rejoice over their union, rendered conspicuous to-day by this congress of botanists, held in connection with a great floral exhibition; and after these general observations—perhaps rather too protracted—let us enter upon the consideration of those more truly scientific subjects, in which many among you are no doubt disposed to take part.

CALENDAR OF OPERATIONS.

ORCHID-HOUSE.

SHADE, water, and a very humid atmosphere during this their period of active growth, are essential; the Mexican species should, however, have the cooler end of the house.

GREENHOUSE.

Mixed Greenhouse.—Most of the common hardwooded plants should either be removed to a sheltered place out of doors, or to pits; this will make room for Balsams, Fuchsias, Neriums, Crassulas, &c., which, with Geraniums, will make the house gay for a considerable time. *Camellias* should be watched, and, as the growth gets matured, more air must be admitted, accompanied with a larger share of light; this will induce the formation of bloom-buds. If in a house, however, with a south aspect, shading must be resorted to during bright sunshine. Syringe as usual. *Cinerarias*.—If sufficient seed has been saved, cut down all that have not been already so treated, and stand them in a cool north aspect. A little very fine soil should be placed round the old stools to encourage the young shoots that break from the bottom to root. Save seed for winter blooming. *Heaths and Epacris*.—Many kinds may now be transferred to pits and frames, where they will thrive better, during the summer months shading them from the hot sun; any done blooming should be cut back slightly, to insure a bushy habit, and kept in a shady place till they commence to grow. Removing the young and early-blooming stock to frames will permit plants in the Heath-

house to stand thin, which will be much to their advantage. Shading and watering as before.

CONSERVATORY AND SHOW-HOUSE.

The conservatory should now be kept thin of extra plants, to allow of the free growth of the proper inmates, which will require air plentifully. Water inside borders freely. The regulation of climbers should take place occasionally, allowing them, however, to grow in natural form as much as possible. A north house is at this season the best structure for showing plants in bloom.

FORCING.

Vines.—When the early Grapes are cut, apply the syringe, especially if red spider is abundant; and give the same attention to preserving the foliage, preceding the ripening of the crop. Stop and tie-in the late Vines, and proceed with thinning as before advised; inside borders will require water oftener. *Peaches.*—Suspend a netting underneath the Peaches, &c., to catch the fruit, should any fall between the periods of gathering. It is better to look them over frequently, as they should not be allowed to hang on the tree till they get so ripe. *Pines.*—Shade slightly in very bright weather; water, and often, now they are swelling off, diminishing it as the fruit approaches ripeness. Give air liberally, and syringe once or twice daily, according to the state of the weather. Repot succession plants, and allow more room for them, as they will now grow fast. *Melons.*—Earth up successional

crops, and train and stop, as the vines advance; give less water to the first crops as the fruit gets ripe. Shading with some kinds of glass is absolutely necessary, or the plants will suffer. Sow for the autumn crops. Cold frames, now emptied of their winter stock, may be successfully used in growing Balsams, and other annuals, Fuchsias, &c., or late crops of Cucumbers and Melons.

KITCHEN GARDEN.

Sow the various vegetables required for succession; and attend to the requirements of those progressing. Water Cauliflower, Spinach, Lettuce, &c., freely in dry weather, to promote succulency. Do not cut Asparagus-beds too much after the middle of the month. Plant out early Celery in rich trenches, and water well; earth up Potatoes, and thin out other root crops.

HARDY FRUIT.

Nail in the young shoots when sufficiently advanced; and follow up the war against the green and black fly; diluted tobacco-water is the best remedy, if clean water fail.

FLOWER GARDEN AND SHRUBBERY.

Neatness is the great point to be attended to, now that the principal planting out for the season is finished. Keep the grass of the lawn and the gravel walks in the best trim by often mowing and sweeping the former, and well rolling the latter, which should be fresh surfaced if necessary. Attend to watering the newly planted stuff in dry weather, and make up failures from the reserve. A few annuals should now be sown for an October bloom. Look to trellis-plants, and tie or otherwise secure them from blowing about; tall-growing herbaceous plants will likewise require stakes. *Roses* are now showing their blossoms, which will be much improved by liquid manuring; mulching, too, in dry seasons is very beneficial. If the preservation of the early flowers is desirable, the Rose maggot must be closely looked after; the green fly, too, should be kept down, and where mildew shows itself, first syringe with tobacco-water for green fly, and then dust with sulphur vivum; a tin pepper-box is a cheap and efficient duster. *Roses* in pots will require attention in watering; the syringe is best if clear rain water is at hand, and the blossoms not too much expanded.

FLORIST'S FLOWERS.

Auriculas.—There will be but very little to do this month beyond keeping the plants clean, both of green fly and decayed foliage. The plants should not be crowded where they stand on a north border, or be allowed to have too much light. *Carnations and Picotees*.—A very important operation to the exhibitor—viz., disbudding, will have to be attended to this month. Go over the whole stock once a-week, removing such side buds as are forward enough, and which it is necessary to displace. Two, with the centre bud, are a full number for any plant to carry. If blooms are required

large for the purpose of exhibition, a less number will be sufficient. They should not be disbudded to their fullest extent on the first time of going over them, as some of the buds may fail. Keep down green fly by brushing the points of the shoots with weak tobacco water and pure water alternately to cleanse them. As the blooming shoots grow very fast it is necessary to go over the plants daily to see that the bast that supports them to the sticks is loose, and to give them fresh ties. *Dahlias*.—The ground having been prepared as directed, these should be planted out about 5 feet apart; 5 feet 6 inches will not be too much from row to row, for the strong-growing kinds. Use good rich soil, mixed with a little leaf mould to turn them out in, this will give them a good start. Secure the plants to stakes when planted out. *Dahlias* suffer more from the first rough weather after planting out than when they become a little hardened; therefore, care should be taken to protect them as much as possible. Neither slugs nor snails will be very plentiful after so much dry weather, but they should be looked after near hedges on damp mornings. Commence trapping earwigs as soon as the plants are turned out; if mild and dry, water overhead every evening. *Hollyhocks*.—Secure these with strong stakes driven a considerable distance into the ground, mulch them with partly rotten manure, and keep them well watered. Side shoots should be taken for cuttings when ready, as the *Hollyhock* strikes freely at any season with proper management. A large stock can only be procured by commencing early, and continuing to propagate throughout the season. *Pansies*.—Continue to put in cuttings largely: many plants die off in July, if the weather is unfavourable; if a young stock is provided, this loss will not be felt. Sulphur the plants if mildew should appear; save seed from the best kinds, those with smooth stout petals and well-defined colours. *Pelargoniums*.—June is the best month to judge of the quality of *Pelargoniums* generally, but a few kinds are best in May. There is little to do this month, further than to prolong the bloom by careful shading, watering, and keeping the bees out of the house. Seedlings will be blooming towards the end of the month, and should be carefully watched, noticing their defects, to prevent the trouble of growing too many kinds the second year. It is necessary to grow them two seasons to finally ascertain the improvement on existing varieties. Fancy varieties should be propagated this month. These should be struck in a cold frame. If allowed to flower long before cutting down they are not so easily struck. *Pinks*.—Water freely if the weather should be dry. Commence propagating towards the end of the month. *Pinks* strike very freely under small glasses, on a raised hotbed. Care should be taken that the heat is not strong. *Tulips*.—Take the canvas off, and allow them to have all the weather.



Bohemian Black Bigarreau.

CHROMO-LITHOGRAPHED BY F. WALLER, 18, HATTON GARDEN.

BOHEMIAN BLACK BIGARREAU.

WITH AN ILLUSTRATION.

THE illustration we this month present to our readers is one in which Mrs. Dix has faithfully represented one of the largest and finest of our Black Heart class of Cherries. It is a variety that was introduced by Mr. Rivers, of Sawbridgeworth, under the name of Bigarreau Radowesnitzer, a name the correct pronounciation of which must in no small degree prove a stumblingblock to English gardeners; and we have therefore rendered it into English by calling it Bohemian Black Bigarreau, in allusion to the country whence it is said to have its origin. Whether we regard this variety as to its size, flavour, or earliness, it is equally valuable. It ripens early in July, and is of the largest size, of a roundish heart-shape, very even and regular in its outline; skin shining, and jet black. The characteristically short stalk is very stout, and dark green. Flesh quite black, firm, but not so firm and crackling as Bigarreaux generally are, but juicy, richly flavoured, and delicious.

We would recommend this to be grown in every collection.

BIGNONIA CAPREOLATA.

WHAT a glorious climber this Bignonia is where plenty of head room is allowed; it forms a most gorgeous object when in bloom. A plant in the conservatory at this place, and reaching the top of the house (about 20 feet), was this season one mass of bloom from the floor to the roof. It is planted out permanently in one corner, contiguous to the hot-water pipes, and in this position it luxuriates amazingly. It requires but a small amount of attention. After blooming there should be a partial thinning out of the weak and unsightly growths; we never tie it, but allow the shoots to hang gracefully down. An occasional liberal watering and a good syringing is the only treatment which it receives.

Wrotham Park.

JOHN EDLINGTON.

STATE OF THE FRUIT CROPS IN NORTH NOTTS
IN JUNE, 1866.

MAY has been the most disastrous month to the fruit crops that I ever remember here. With the exception of Apricots, temporarily covered here with glass lights, all wall fruit was much injured by the frost on the morning of the 30th of April. In the first week of May the frosty mornings again damaged the blossoms of hardy fruit trees, especially small bush fruit where not protected, and the crops are very thinly set. In orchards, where the fruit trees are large, the foliage protected the blossoms more from the dry east winds and frost, and better crops may be found; but they are everywhere partial, especially Apples, Plums, and Cherries. Small hardy fruits, such as Currants, Gooseberries, and Raspberries, are abundant, and where Strawberries were well watered in the dry weather last summer, they promise to produce abundantly this year, the rain just coming in time to swell them off. The show of blossoms this spring in gardens and orchards was finer than usual, owing to the warm autumn of last year ripening the wood so well; but now the effects of the ungenial May are apparent everywhere, except where the trees were well sheltered.

All gardeners who had stiff soils to manage found it impossible to get seeds to vegetate this May, for such soils were saturated before the dry weather set

in, and they afterwards got baked as hard as brick. Broccoli, Turnips, and other small seeds were sown three times here in May in the usual quarters; but none of the seed vegetated thickly enough to furnish a crop, and I had to depend on some sown on a warm border and daily watered. Tender vegetables, such as early Potatoes, Asparagus, and Kidney Beans, were cut down three times in the month, for even on the 30th 1° of frost was registered, and the Fern in the park was quite blackened in low situations.

This May will have given many a check to those who are in the practice of bedding-out too early, for they will see that nothing is gained by too early planting. In fact, the time will come when no summer-bedding plants will be put out before the beginning or middle of June by all gardeners who can find sufficient room to harden their stock off in sunken pits or sheltered places, and when they plant-out the beds will be so furnished that due effect will be given to flower gardens at once, without the risk of the plants being starved with cold in May. I had such glorious masses of colour this April and May from clumps of *Silene pendula*, Forget-me-nots, *Aubrietias*, Pansies, and other spring bedders, that I intend for the future to depend upon them more, and only bed-out the summer things when well hardened off and full of flower.

Welbeck.

WILLIAM TILLERY.

AQUILEGIA ALPINA.

THE Alpine Columbine is a most beautiful hardy perennial, from 12 to 18 inches high. It grows freely in any soil or situation, but does best in a sandy loam. It has very large purplish blue flowers with white centres. It is a very showy, striking object when in flower during May and June. It should be grown in all mixed borders. It is easily increased either by seeds or dividing the old roots. The seed should be sown in an open bed or border in August or September. In the spring following the plants will appear above ground; they should be kept clear of weeds. In May they should be transplanted into beds at 9 or 10 inches distance every way. In the autumn they should be removed into the flower-borders, and in the following season they will flower beautifully.

Stourton.

M. SAUL.

NOTES AT THE SHOWS.

THE Special Prize Show at South Kensington, on the 14th of June, though small in extent, was of a very interesting character. These "special prizes" were offered by certain gentlemen in order to bring out their "specialities." The President of the Royal Horticultural Society offered four prizes, the first for "the best nine plants sent out in 1865," which was awarded to Messrs. Veitch, but which many thought should have gone to Mr. W. Bull; the second for "the best nine plants sent out in 1864-5," which was taken by Mr. B. S. Williams, Messrs. Veitch being second; the third prize for "thirty-six Roses, single trusses, including varieties sent out in 1864-5;" and the fourth for "the best collection of Roses sent out in 1864-5." I do not attempt to canvass the merits of the subjects that competed for the prizes for new plants. There is no lack of new plants—from far and near they come, and I almost fancy sometimes the aim of our new-plant exhibitors seems to be, not who shall have the best, but who shall have the greatest quantity. I think also that while the really good flowering plants are few, fine-foliaged plants are plentiful, and certainly many of them are very beautiful.

The cut Roses were scarcely up to the mark. How could they be? The

weather had been dull, dry, very gloomy, and often very cold. The prize for thirty-six flowers was taken by Mr. Turner, Messrs. Paul & Son being second; but in the class for the collection this order was reversed. Mr. Turner had good flowers of that fine dark Rose, Charles Lefebvre; also of Olivier Delhomme, Leopold Hausburg; Joseph Fiala, a new purplish-crimson flower of considerable merit; Mdlle. A. Halphen, a fine shade of crimson, a really notable flower; and Doctor Andry, bright rosy crimson. Mr. Turner had a boxful of Madame Victor Verdier, in colour a rich glowing crimson. Messrs. Paul & Son also had a boxful of their new Rose, Princess Mary of Cambridge, a pale rose flower, the colour of which is very pleasing; and good blooms of Prince Camille de Rohan, Madame Furtado, Exposition de Brie, violet-shaded dark crimson, and others.

For Mr. W. Wilson Saunders' prize for "Officinal and Medicinal Plants," Mr. Bull was the only competitor. His collection is very varied and interesting, and now pretty well known to the frequenters of the London exhibitions. Mr. B. S. Williams secured, with some excellent specimens, Lady Dorothy Nevill's prize for the best ten exotic Ferns, Mr. Bull being second. Mr. Williams also received Major Trevor Clarke's prize for Bromeliads.

In my opinion, the plants exhibited in competition for the ladies' prizes, offered by the proprietors of the *Gardeners' Chronicle*, were greatly in advance of anything before produced. Mrs. Dombain, of Deal, was deservedly awarded the first prize for a capital specimen of *Adiantum cuneatum*, evidencing careful and successful culture. It was said to have been kept in an ordinary sitting-room for the space of two years. The second prize was awarded to Mrs. Marshall, of Enfield, and the third to Miss Fisher, of the City Road, for specimens of the Hare's-foot Fern, *Davallia canariensis*. The former had been kept in a sitting-room five years, and the latter nine years. There were as many as eighteen plants produced, generally in very good condition. Mrs. Hooke, of Fulham, had a plant of *Cypripedium barbatum majus* with six flowers on it, a very healthy and clean specimen, said to have been in a drawing-room seven weeks. From Lady A. Norman, of Campden Hill, Kensington, came plants of *Maurandya Barclayana*, and the Variegated Japanese Honeysuckle (*Lonicera aureo-reticulata*), growing together over a balloon-shaped trellis. The plants looked drawn, as if they had come out of a stove. Another Japanese Honeysuckle, from Mrs. Wyatt, of Upper Tooting, growing on a flat trellis, was a very creditable specimen of in-door culture.

A magnificent *Verbena*, from Messrs. Perkins & Sons of Coventry, named Shakspeare, was much admired. The flowers are large and very stout; colour, bright scarlet shaded with crimson, round a conspicuous lemon eye. It will be a very fine exhibition variety.

A collection of double *Pyrethrums* (cut blooms) was shown by Mr. John Salter; they were of remarkable beauty, some of the colours being very striking. It was truly said that they "anticipated" the *Asters* of a month or two later. They are greatly superior to the *Anemone*-flowered *Chrysanthemums*, and some resembled the Quilled *Asters*. Any one desirous of growing them should have the following: Prince of Wales, *Rubra plena*, Madame Bellard, *Carminata plena*, *Rosa plena*, *Fulgens plenissima*, *Imbricata plena*, Jessica, and Herman Stenger. A collection of cut *Pæonies*, from Mr. Salter, were also of a very interesting character, and invaluable for shrubbery borders.

Mr. Turner had a boxful of his new early forcing Pink Rubens, very dwarf and free-blooming, and exquisitely fragrant; and Messrs. G. Jackman & Son sent plants of their varieties of *Clematis*—viz., Rubella, Alexandra, Velutina purpurea, Magnifica, and Jackmannii.

FLORAL COMMITTEE, JUNE 19.—Again lots of new plants, and all looking

so good as to be apparently worthy of certificates. A fine dark-coloured upright-growing Gloxinia, from Messrs. Veitch & Sons, named Prince Teck, was greatly admired, and received a first-class certificate. Messrs. Downie, Laird, & Laing, had a pale violet-coloured bedding Pansy, named Imperial Blue, which greatly resembles a very showy-looking variety Mr. Fleming has been using this season at Cliveden, and glorious it looks in that wonderful spring flower garden. A first-class certificate was awarded to Mr. Turner for a fine seedling Pink, Princess of Wales, a heavily-laced flower of large size, and with plenty of substance. Lots of Zonale Pelargoniums were produced by Mr. Bull; variegated varieties by Messrs. Smith and E. G. Henderson & Co. To the latter firm was awarded a first-class certificate for Pink Stella, a rosy pink Nosegay variety; and the same award was made to Mr. Turner for Duchess of Sutherland, colour rosy-crimson puce, flushed with violet, medium trusses, but produced in great profusion, short stiff footstalks, and good habit, also a Nosegay variety. Some of the variegated kinds from Messrs. F. & A. Smith were very handsomely marked.

Some fine seedling Pelargoniums came from Messrs. Foster, Hoyle, and Turner. First-class certificates were awarded to the following:—Perfection (Foster), rosy pink, pencilled with bright crimson, dark top petals with fiery margin and edging of pale pink, a delicate and beautiful flower, very free; Archbishop (Hoyle), soft rose, with dark crimson top petals blotched with black, a large and finely-formed flower; and Milton (Foster), a large, stout, and well-formed flower, lower petals warm rose pencilled and blotched with crimson, dark top petals edged with rose, white throat. A second-class certificate was awarded to Beauty of Windsor (Foster), carmine rose pencilled with crimson, dark top petals, white throat, a good-sized flower. Negress was commended for its singular dark colour, and conspicuous white throat. Other good flowers were Shakspeare (Foster), lilac, pencilled and blotched with crimson, white centre, and very dark top petals. It is one of those stained flowers I hardly like, and one of the best yet seen. King of Flowers (Foster), is of a bright carmine shade faintly suffused with crimson, white throat surrounded with a purple glow, a medium-sized flower, of good form, and very free. Betrothed (Foster), is a large, stout, and well-formed flower, of a pleasing shade of rose, with dark top petals, very free; Congress (Hoyle), bright carmine crimson, with dark top petals, margined with fiery crimson, white centre, very showy and novel; Gold Button (Hoyle), carmine, blotched with crimson, white throat, dark top petals margined with bright crimson; and Mongini (Hoyle), rose, pencilled with crimson, dark top petals margined with rose, very free.

Quo.

THE TEMPERATURE OF WATER, AND ITS EFFECTS UPON PLANT-CULTIVATION.

[The following is an abstract of an interesting paper on this subject presented by Mr. Anderson, of Meadow Bank, near Glasgow, at the late Botanical Congress.]

CULTIVATORS in general are not over-zealous in taking cognisance of the relative temperature that exists between water and air in any given house, and yet upon such, in a great measure, depends the exuberance of the plants. Many scarcely recognise the importance of making adequate provision for water heated, at least, to the same temperature as the atmosphere. It is not sufficient to have cisterns dug out under the ground floor, and made water tight by the various methods in practice, to produce a temperature sufficiently high. Unless the hot-water pipes actually run through or under

them, I have found by repeated experiments, especially in tropical houses, that a difference ranging from 5° to 10° , Fahrenheit's scale, exists between the temperature of the air and that of the water. I can scarcely conceive anything more prejudicial in the whole routine of plant culture, having a tendency to chill and paralyse root-action, than frequent waterings at such a dissimilar temperature. It is bad enough under any circumstances, but when we come to practise upon valuable tropical Orchids, the injury becomes, after a time, irreparable.

Why should this be so? Is it owing to the conservative tendencies of an initiatory practice? Numbers, certainly, do seem disinclined to move out of the groove into which they settled down in the early days of their practice, while others have been bold enough to strike out of the beaten course, and oftentimes, too, not without success. Curiously enough, it has long been a custom to furnish bottom heat for Pines, and even Melons and Cucumbers, arranging the beds in such a way as to be from 5° to 10° higher than that of the surface, and good results have invariably followed. Tepid water has always been in request by our foremost Pine-growers, and formed one of the recommendations in every calendar of operations. Indeed, were any one to question the merits of the system as a whole, a hundred voices at least would be lifted up against him. Innovations make slow progress; for it is only a modern practice looking into the geothermal state of Vine-borders, and furnishing either by chambers or aërated passages an auxiliary means of preserving and dispensing heat to the roots. No one, unless he be a bigot, will venture to challenge or gainsay the good to be derived by the adoption of such a system. Any little dispute that has arisen as to the efficacy of heated Vine-borders is traceable to individuals resident in localities having subsoils such as sand or chalk, which have greater power of retaining heat and parting with superfluous moisture than other subsoils, and therefore have less need of artificial appliances. And how, I would ask, is it that the practice is not universally carried out? why is it not followed to a legitimate issue? If we have unmistakable proof of an improved cultivation in every advance made in accordance with a system, we may be certain that it is an innovation of the right stamp, worthy of imitation and adoption.

So far as the practical gardener is concerned, there are no plants under cultivation that merit a more undivided attention, whether we look to their variety, the geographical range over which they extend, or above and beyond all, their monetary value, than the Orchidaceæ. Every little scrap of information from reliable sources is gathered up and noted down with an avidity only known to Orchidophilists and Orchidculturists. The physiological structure of the plants is so peculiar, so different to that of every other form of vegetation, as to render them pointedly interesting to every naturalist. That they are capable of resisting far more fatigue than any other plants is well known, and yet it requires the highest degree of cultural skill to maintain a collection generally in a healthy state. They are also liable to diseases quite foreign to other plants, and, in this respect, approach a step closer to the animal kingdom.

In the course of experience and experiment over a large and varied collection, I have found tangible benefits to accrue from studying the thermal condition of the compost in which the plants grow.

I may state that it is no haphazard conjecture that I am about to propound, but a simple statement of facts evolved during a ten-years practice upon an Orchidaceous collection. In the former period, although I managed to grow the temperate species quite satisfactorily enough, I could not manage the great subdivision of Vandææ at all well. I found, especially in

the case of *Saccolabiums*, *Phalænopsids*, and some of the more tender *Aërides*, the most discomfiting opposition. The fine fleshy roots which had been emitted during the growing season, and which had been introduced into the pots, pans, or baskets, as the case might be, at the season of repotting, were on the next examination a mass of rottenness; in many instances very few of the roots under ground escaped unscathed. What was the consequence? The lower leaves became yellow, dropped off one by one, and left me and the plant at the end of the season in pretty much the same condition as at the beginning. This was mortifying enough, especially as the compost was physically and chemically good enough, as I have ultimately proved. Wherein, then, lay the defect? It was in the watering of the plants with water taken from an underground cistern, which a series of thermometrical experiments have shown me was cooler by 7° to 10° than the atmosphere. "Necessity is the mother of invention," and when I began to reflect upon the advantages of bottom heat to Pines, Vines, and stove plants, I set about effecting a reformation. I shrugged my shoulders and shook my head at the very idea of a tan or sand-bed in an Orchid-house, as being a resort for an army of cockroaches (*Blatta orientalis*) that could never be successfully overcome, and that would be a plague among the plants scarcely less devastating than the locusts of old. I resolved that the water should be increased in temperature, and with that view ordered hot water to be drawn from the boilers and mixed with the colder water drawn from the cistern until it was never less than 10° —it might be sometimes so high as 20° —warmer than the atmosphere of the house about to be watered. The effect, in a few months, quite exceeded my most sanguine anticipations. The vigour of the plants increased, the quality and quantity of the bloom was greatly superior, and when the season of repotting came round, the roots embedded in the compost, instead of being all but universally putrid, were generally healthy. I have now, for upwards of two years, carried out the above plan in integrity, not only in tropical but in "cool" Orchid-houses, with marked success. The impregnation of iron in the water drawn from the boilers, instead of being attended with any depreciating influence as some would have us take upon credit, on the contrary appears to be productive of good.

Every gardener is a meteorologist, almost by compulsion; and yet there are probably not half a dozen cultivators in England that ever took the trouble to gauge the temperature of water about to be used either out of the water-pot or the syringe. Men in charge, under the principal, although obedient, are not always reflective and painstaking, and unless positive orders be given that water at such a temperature *must* be used, a good deal will be distributed at random.

In order that there may be no misunderstanding or doubt as to the theory I wish to inculcate and to be applied, allow me to reiterate that all pot plants as a rule ought to have water at the root at least 5° warmer than the atmosphere in which they live, and that tropical Orchids will prosper all the better with a minimum variation of 10° —that is to say, if all other conditions of treatment are skilfully met, a corresponding degree of vigour will be maintained. Much the best system I have seen in practice, recognising the value of bottom heat, without plunging material, is that applied in one of Mr. Day's tropical houses at Tottenham. Along the centre of the house, instead of so many tiers of four-inch piping, there is a trough-like cistern, narrow at bottom and widening out towards top, somewhat in the form of a feeding-box for horses on a large scale. This is connected with the boiler by pipes in the usual way, and circulation is constantly taking place. The top is so arranged as to be open or shut at pleasure, and by this means an excellent steady heat, either moist or dry, is

dispersed over the roots of such plants as are immediately over its surface. I need scarcely say that Mr. Day's *Saccolabiums*, *Aërides*, and such like plants, in a medium of this kind, under Mr. Stone's cultural care, are indicative of high health and vigour.

Lastly, we all know and fear the ravages of spot; we look with the greatest concern upon the insidious way in which it works itself over a collection of *Orchideæ*, and oftentimes disfigures for life the appearance of many valuable plants. I unhesitatingly pronounce that there seems to be no absolute cure for some of the more aggravated forms of it; but beyond question skilful treatment will in a great measure prevent it. There are a variety of conditions that must be observed before any cultivator can command success; but in all my experience I have never been able to count upon it with the same certainty—I have never been able to claim immunity from the inroads of spot in the same satisfactory manner, until after I had reduced the “watering” theory to every-day practice.

REMARKS ON FRUIT TREE CULTURE.—No. 11.

To preserve the vitality of the central part of fruit trees should be a very great object with the cultivator. How often may we see in places where the practice of pruning and management is not understood, the greater portion of the bearing wood and fruit at the extremities of the branches of even large trees, while the centre of the tree is bare of any growing wood, consisting only of naked branches, fully exposed, be it observed, to the full glare of the sun, of the effects of which exposure I shall have something more to say presently. Just now I wish to impress on the mind of the young practitioner the necessity of commencing early to lay the foundation for keeping the centre well filled, by cherishing those extra shoots mentioned in my last article, as enabling the operator to thin out the extremities occasionally, and keep his trees at home, as many old hands call it, meaning thereby well furnished from the centre to the circumference, not only with wood, but with foliage, to shelter it from the evil effects which often result from the fierce rays of the sun striking on its exposed surface when nailed close to a wall. This important subject is one which is worthy of a little extra attention; we have to remember that a Peach tree against a wall is in an artificial condition, both as to treatment and position. We do not anywhere find that healthy trees growing in a natural state, and with plenty of room for development, ever grow in such a manner as to expose their stems to the full action of the sun's rays in summer. On the contrary, it would appear that the natural tendency of growth is to spread the branches out and clothe them with foliage, so that the powerful rays of the sun are broken, and the stems kept comparatively shaded; not that I would infer from this that these effects are ever injurious in the case of trees standing in the open ground, only that the natural tendency of growth would appear to be to shade the stems by foliage. The case, however, is different with trees trained against a wall. There the rays of the sun are intercepted and intensified, and hence it is that I consider it so very important that young wood should be encouraged to grow in the centre of trained trees, and more particularly of Peaches and Nectarines, in order that the larger shoots, which carry the extreme bearing wood, may be kept shaded by the foliage. I am well convinced that injurious effects do often arise from the action of a powerful hot sun striking upon such shoots when fully exposed and bare of protecting foliage. This is often evidenced by the upper sides of such shoots having the bark contracted, split across, indurated or unnaturally hardened, and sometimes killed, by which means the flow of the sap and consequent enlargement of the

wood are principally confined to the under sides of the shoots. These effects, however, are not immediately perceptible or injurious, because it is a work of time to develop them; but I am well assured that they so far interfere with the organisation of the tree that in the end they tend greatly to weaken the power of growth, and to assist, in combination with other causes, in producing that debility of constitution which we see in wall trees.

The effects above referred to may certainly be averted by an early attention to the preservation in the centre of young wood, which may be laid in pretty freely among the large stems without any particular reference to the production of fruit from that particular part. Here and there a shoot may be left for that purpose; but the greater portion will require to be cut back to two or three buds every season, for if allowed to bear fruit they will soon become too much debilitated to push out buds. Let me here observe that the necessity for this mode of treating that particular part of the tree will only arise after the lapse of some years from the starting point; but the foundation must be laid early by the reservation of more shoots about that part of the tree than will be required for the production of fruit; all the rest of the tree, however, will require to be manipulated with that object in view, and, in case of accident, the reserved shoots in the centre will be found doubly useful to cut back to.

Standard Peaches and Nectarines, when trained against a wall, cannot have the stems protected by foliage, and hence it is good practice to cover them with finely twisted bands of hay or straw, under which treatment they will grow to a much greater size than when fully exposed, which I consider a convincing proof that the practice is beneficial.

Redleaf.

JOHN COX.

EUCHARIS AMAZONICA.

AMONG stove plants *Eucharis amazonica* is certainly unrivalled for elegance and beauty, when unfolding its charming snow-white flowers, which are produced on scapes about 18 inches high, bearing from three to seven blooms, which are well elevated above the handsome, dark green, ovate-lanceolate foliage. The individual flowers, which are circular in outline, and measure from 3 to 5 inches in diameter, consist of three petals and three sepals of a cordate-acuminate form, from which the stamens, six in number, arise, together with an additional series of barren stamens forming a corona or cup, which is exquisitely tinted internally with green. The cultivation of this lovely plant is very simple, and, with a good supply of bulbs, when properly managed, it may be had in bloom all the year around; in fact, no well-regulated garden establishment ought at any time to be without plentiful supplies of its charming flowers, which, besides being highly ornamental in the stove, are splendid when cut for bouquets, &c., and are universal favourites with ladies, by whom they are often used in ornamenting the hair, their waxy texture admirably adapting them for withstanding the hot and parching atmosphere of the ball-room.

Let us suppose we commence the first month of the year with a plant, or a dozen of plants, in bloom, which we have procured on our last visit to the nursery, where we were greatly charmed with its beauty and suitableness for decorative purposes, as we saw it there grouped with *Poinsettia pulcherrima* (another valuable winter-blooming plant, the brilliant scarlet bracts of which contrast well with the snow-white *Eucharis*). So long as the plants continue in flower water freely, but as the blossoms decay remove to a cooler part of the stove, and allow them gradually to go to rest. It must be borne in mind, however, that the foliage is evergreen, and will not bear being kept dust-dry. After remaining dormant for six or seven weeks, a few of the bulbs may be

shaken out and repotted singly into six or seven-inch pots (where more than one is wanted, the size must be regulated according to the number), using rich fibrous peat, with about one-third leaf-mould and silver sand intermixed. After potting, remove to the warmest part of the house, and plunge in a bottom heat of about 70°, where they will soon begin to produce new leaves, and must then be abundantly supplied with water. As they advance in growth, great care must also be taken to keep the atmosphere of the house charged with moisture, in order to promote the full development of the foliage and maturity of the bulbs, for on this point chiefly depends success in flowering. When the plants have arrived at this stage they should be removed to an intermediate-house for some time, and be finally introduced into a brisk heat, when they will produce their beautiful flower-scapes in abundance, and amply repay the cultivator for the care and attention that has been bestowed on them. The remainder of the bulbs should be started in rotation and treated in a similar manner, and by these means a constant succession of flowering plants may be had the whole season. It also succeeds well when planted out in a stove along with Ferns, Begonias, and other ornamental-foliaged plants. A few years ago I had occasion to plant a large specimen in this manner in the month of February, and towards the end of July it produced seventeen stems, on which I counted at one time upwards of fifty fully expanded flowers. I need scarcely say it was admired by all who saw it. Propagation may be easily effected by means of offsets, which are produced abundantly.

J. T.—(*West of Scotland Horticultural Magazine.*)

CULTURE OF THE PEACH AND NECTARINE.

(*Concluded from page 122.*)

WELL-MANAGED trees should never present a crowded appearance of shoots in summer, and no part of the tree should have any shoots stronger than the rest; should any such appear their vigour should be arrested by stopping, though I always consider that a misfortune. I like to see every young shoot of equal strength. A young shoot in the right place may appear in early summer weak and unpromising; but, if all the rest that are useless are removed, the shoots in the right place will quickly gain strength. Let the cultivator never run away with the idea, that by retaining a greater number of young shoots he is thereby multiplying the chances of having fruitful branches. It is often a fatal and always a mistaken notion. Adhere to the rule, that a few shoots well ripened are far more sure to produce good fruit than when a larger number are crowded in between the main branches. Should any of the trees grow too strong, and make long watery shoots, the best way to check such is to lift the trees early in the autumn and replant them; that will be sure to moderate their growth and cause them to produce more kindly wood. In performing this operation, great care must be taken not to injure or mutilate the roots. Open a trench at the very extremity of the roots and undermine them carefully, picking out the soil from amongst them with a three-pronged fork; replant the tree immediately exactly the same depth it was before, unless by some means or other too much soil had accumulated above the roots; then plant them shallower—that is, cover the roots with a less thickness of soil.

NAILING.—Where this mode of fastening the branches to the wall is followed, the operator must be exceedingly careful not to wound them with the hammer-head. Sometimes the hammer will slip off the nail-head and hit the branch instead, abrasing the bark at least, and thereby often bringing on a

gummy state. To prevent such a misfortune, he should always place his fingers round the nail and hit them instead of the shoot. However, in many good gardens the walls are wired at from 6 to 8 inches apart, and the shoots are tied to these wires. This, in some respects, is a better plan, because the ties do not harbour insects like the common cloth shreds, and there is no danger of bruising the shoots with the hammer; but there is another danger, and that is, if the shoots are tied-in tight at first, the shoots swell and increase in thickness, and become strangled at that part: hence, at pruning-time, they are apt to break at that part, and thus disappoint the hope of fruit from such branches. Let the grower, then, beware of this evil, and watch over the ties; and when they are approaching to being too tight, cut them, and re-tie them more loosely.

As soon in summer as the young shoots have grown long enough, let them be secured to the wall to prevent their being blown off by the wind. This is of consequence, as, after the superfluous shoots are rubbed off, the loss of any branch required is difficult to be repaired. Therefore, secure such shoots as soon as they can be handled; place them in the most open space, so that every leaf may have its full share of light, yet not shade the fruit-bearing shoots. I consider here and there a part of the wall should even be unshaded, to gather heat from the rays of the sun: that heat helps to ripen the fruit and the wood also.

SUMMER TREATMENT.—This season commences when the trees are coming into bloom, and ends when the leaves are fallen from the trees. The attention they require consists in, first, protecting the bloom; next, disbudding; third, thinning the fruit; fourth, watering; and lastly, destruction of insects and mildew.

PROTECTION.—The shelters used for this purpose are various. Some use Spruce Fir branches tied to the main shoots, others use branches of Beech with the dry leaves on; but these shelters are of but little use, and sometimes injurious. What is needed is a shelter from frost only; and, therefore, a contrivance whereby the trees may be covered at night, and exposed during the day, is far superior to a fixed one like the branches of trees. The best kind I ever used was made as follows:—A long board projecting from the top of the wall over the trees was fixed first, then to it a sufficient number of pulleys, through each of which a rope was threaded; one end was fastened to a pole on which was nailed a length of canvas, or netting, wide enough to cover the wall when let down. Another pole was fixed on posts near to the ground about 2 feet from the wall. To this pole the other edge of the canvas or netting was fixed. To keep the covering from the wall some rough larch poles were reared up at 6 or 8 feet apart. During the day, in mild weather, this shelter was let down, resting upon the lower pole by means of a rope, and early in the afternoon it was drawn up, thus covering the trees completely. By this contrivance we sheltered the blossoms from frost by night, and exposed them to the warm sun during the day. In another place we used frames of wood the height of the wall, made about 3 feet wide. These had thin canvas nailed to them, and when in use rested under a piece of wood nailed to the top of the wall, and on another laid on the ground. The frames were light, and easily moved. A young man in half an hour could remove them from a long wall in the morning, and lay them down in the walk on two pieces of wood to keep them from the damp, and replace them in the afternoon in the same time. This mode is rather troublesome, and, perhaps, expensive at first; but with care the frames last many years, and the protection they afford is most effective. The late Mr. Errington always advocated the putting on of these shelters early, for the purpose of retarding the blossoms from expanding too early whenever a warm

February or March occurred. Of course, when put up for that purpose, the sun is the object to be sheltered from : hence the protectors should be kept on during the day. No doubt other modes of shelter might be devised ; but the object should be kept in view of not retaining them on in mild weather during the day, nor too late in the season.

DISBUDDING.—I have already incidentally mentioned this part of the summer treatment under the head of training, I need only repeat here that disbudding can hardly be done too soon. If the superfluous shoots are left on too long they absorb that nutriment which should be given to the needful shoots, and also the scars that are made in removing them are injurious to the branches. The leading shoots must be left on to draw up the sap to feed the fruit ; but they should have the end nipped off when about 8 inches to a foot in length. The shoots for bearing the fruit the following season should be retained their full length, and as soon as they are long enough should be nailed in. Give them as much space as possible, so that every leaf will have its due share of light. In this place let me warn the young grower against laying in too many summer shoots. Those growers that do so are under the erroneous idea that thereby they multiply the chances of a crop of fruit, whilst, in fact, the effect is the reverse. Crowded shoots injure each other ; the leaves cannot perform their functions ; the buds are all, or nearly all, wood-buds ; and for want of light and air the wood in the autumn is crude and unripe ; all these fatal evils may be avoided by keeping the trees thin of wood during the summer, and also keeping the shoots retained regularly nailed or tied close to the wall. Be careful, however, not to enclose the shoots too tightly with the shreds or string.

THINNING THE FRUIT.—The Peach tree when healthy, and its annual shoots properly ripened, is very fruitful, and will set, as it is called, more fruit than will expand to full size and perfection : hence the advantage of thinning. The number of fruit that it may be advisable to leave on to ripen depends in some measure on the vigour of the tree. If very strong and healthy, the final thinning may leave a fruit to every 6 inches square of the wall that the tree may cover ; if moderately strong, extend the space for each fruit to 9 inches square ; and if weak, thin them to a foot square. These distances may not be kept mathematically correct, for the fruit may be rather thicker in one part of the tree than another ; but the number of fruit that is left should be such as would, if regularly and exactly placed, amount to the same quantity. At the first thinning, which should take place as soon as the fruit are the size of a boy's marble, take away all that are of a bad form or are badly placed. At the second thinning remove such as are near the base of the bearing-shoot or near the top of it ; and after the fruit has stoned thin them according to the above-mentioned distance, for then it may be considered certain that no more will drop off naturally.

WATERING.—In dry seasons a good soaking of soft rain or river water will be necessary in order to swell off the fruit to the highest perfection. Some years ago I visited a place in North Wales where there was a Peach-wall of considerable length. A new gardener whom I knew well had been engaged there. The owner told him that the Peaches and Nectarines were fruitful enough, but were always small and deficient in juice and flavour. His new gardener told him he could remedy that, providing the trees were left to his judgment to do what he thought proper to them. To this reasonable proposition the gentleman (who, by-the-by, was an amateur gardener himself, and perhaps had previously interfered too much), consented. The gardener then at the thinning time took away what he thought necessary ; and when those that he left had stoned he opened hollows in front of each tree, and filled these

hollows with water to the depth of 2 or 3 inches. The hollows or basins were filled up after the water had sunk into the soil. This was done three times during the time the fruit was swelling, and the effect was very remarkable—the fruit was above the ordinary size, and was well coloured and well flavoured. The water was withheld as soon as the fruit began to show signs of ripening, and was no more applied that season. The young wood was stronger, was well set with blossom-buds, and, as I was informed, the trees did equally well the following year. This example is, I think, worthy of imitation in all cases where the trees are rather weak, the border well drained, and where fine fruit is desired.

INSECTS.—The insects that prey upon the Peach during the growing period are the red spider and the green fly; woodlice and wasps also often feed upon the fruit when ripening. The red spider may be got rid of by frequent severe syringings. If very numerous, mix in the water some sulphur, which is also a remedy for mildew wherever it occurs. This remedy should be applied early in the season, but when the fruit is ripening it should be withheld, or it would disfigure the fruit; but if either the red spider or the mildew prevail after the fruit is gathered, then repeat the remedy till both are extirpated. The green fly is easily got rid of by syringing the trees once or twice with tobacco water. Woodlice harbour in old walls, and the only remedy is pointing-up the nail or other holes at the time the trees are loosened from the walls for pruning in the autumn. Considerable numbers may, however, be trapped during summer in hollow bean-stalks stuck behind the branches and emptied every day by blowing down them into a vessel containing very hot water. When wasps are very abundant set traps for them. Wide-mouthed bottles half-filled with some sweet liquor are excellent traps, as are also double hand-glasses, the under one set on four half-bricks, one at each corner, with a hole or two made at the top, and then place the other hand-glass on the top of the first. Put a plate containing sweet liquor on the ground under the hand-glasses; this will attract the wasps, and when satiated they will fly upwards, and make their way into the upper glass, where they will soon exhaust themselves, and finally perish. If the wall is of great length, and wasps prevail very much, then these traps should be placed in a row in front of the wall at 20 or 30 feet apart. Of course the traps will catch not only the wasps that prey upon the Peaches, but also those that would otherwise attack any other kind of fruit in the garden.

WINTER TREATMENT.—This season commences as soon as the leaves have fallen. If the wood has been properly ripened the leaves will naturally fall off with the first frost. Collect them as soon as they fall and convey them to the rubbish-heap at once. Then loosen the trees from the wall, take off all the shreds, burn such as are decayed, and let such as are fit to be used again be put into boiling water to destroy the insects and their eggs. The nails should be carefully drawn out of the wall, and in order to do so without drawing away the mortar give each nail a gentle tap with the hammer. To cleanse them from dirt and rust throw them into a vessel containing hot oil, and let them steep for a few hours. Then take them out and put a few at a time in a rough, coarse bag, and shake them well backwards and forwards. This operation will cleanse and keep them from rusting, and will destroy insect life thoroughly.

The trees should be drawn from the wall, and the wall itself should be thoroughly cleansed, and repaired if necessary. If the red spider has prevailed during the summer it will be advisable to make up a mixture of sulphur and soft soap, and paint the wall with it, rubbing it well into the crevices and nail-holes. The trees also should be painted over with this mixture, moistening every part of the trees, especially on the side of the branches next the wall.

When all this has been completed, then fasten the trees to the wall by a few of the main branches only. This is to secure them from being blown about by the wind till the pruning time. I prefer the end of February or the first week in March for that operation. Where the walls are extensive the pruning may be done sooner, in order to get through the work. The fruit-bearing branches may be shortened-in, but care must be taken that a wood-bud is next the cut. Those that bore fruit the preceding year must be cut out entirely, excepting the leading shoot at the end of a main branch. As soon as a tree is pruned it should be trained and nailed to the wall, or if the wall is wired it should be tied to the wires. Then, when all the trees are gone through, the winter work on the Peach and Nectarine trees is completed.

DISEASES.—The only disease that I know of is that named gumming. It is a kind of gangrene, which first appears like a swelling, it then bursts and the gum exudes. If the border is made properly and the wood well ripened this disease will not appear: hence, if ever symptoms of gum show themselves, the only remedy is to examine the border. If it is wet at the bottom, let it be thoroughly drained; if it is too full of manurial matter, remove that soil entirely and replace it with fresh maiden earth. Then, again, take great care that the branches are not wounded by the hammer or any other instrument.

A.

CARTER'S CHAMPION BROCCOLI.

OF Broccolis that come in for use in April there is no scarcity, but good late kinds are by no means over-plentiful. Having tried most of the sorts that have come out of late years, I can strongly recommend Carter's Champion as an excellent late kind. From plants grown in a warm and forward situation I have this season cut fine heads up to the end of the first week in June. Had the plants been grown on a north border or other late situation, I have no doubt that they would have furnished a supply of good heads until the end of the third week in June, by which time Cauliflowers begin to come in plentifully. In general about the middle of June Cauliflowers begin to come in with us here; sometimes, according to the season, we have them a few days earlier, and, at other times, a few days later. I have never had any other kind so good at so late a season as I had Carter's Champion this season. I have not yet tried Cattell's Eclipse, but, if it be later and better than Champion, it is a very valuable kind indeed.

For April and the early part of May we scarcely require better kinds than Knight's Protecting and Dilcock's Bride Broccoli. What we most need is a Broccoli to come in from the middle of May to the middle of June. Carter's Champion is the best for this season that I have yet met with, but I hope to see something better still.

Stourton.

M. SAUL.

ON THE DECAY OF APRICOT TREES.

It is well known that the large limbs of Apricot trees often die off, even when they are in leaf, and, perhaps, full of young fruit, while the other branches are healthy. This unfortunate decay occurs more or less according to the situation of the trees and the severity of the winters; but although much attention has been paid to the subject, the cause is not well understood. I have long been of opinion that the loss of the branches is the effect of frozen juice bursting the sap-vessels; and such may be the case with many other kinds of trees and shrubs which are killed in winter, especially tender ones, of

which the sap-vessels are adapted to warmer climates : hence the difficulty of acclimatising plants.

Some kinds of Apricot are more hardy than others. The Breda and Turkey are less liable to decay than Anson's, or the Moorpark, which is said to have been introduced by Admiral Anson. I wish, however, to notice, that the gangrene in the inner bark is the effect of ruptured sap-vessels. In general the decay begins near the clefts of the branches, close to the main stems, and in time checks the supplies from the roots, it matters not whether the trees are young or old. Perhaps the evil may in some measure be prevented by keeping the outer bark smooth to throw off the wet, and by protecting the suspected parts with fern during winter.

J. WIGHTON.

REMARKS ON THE GENUS MYOSOTIS.

ALL the perennial species of this genus are very beautiful, and well deserve to be extensively cultivated. They grow best in moist situations, or by the edges of ponds or ditches. They may also be grown in any place in the garden not too hot or dry ; or they may be cultivated in pots. They are easily increased by division of the roots, and by seeds. The seed should be sown in the autumn upon an open bed or border of light earth. In the spring the plants should be thinned where they are too close. If the ground where the plants are to be grown be kept clear of weeds and the seeds be permitted to scatter, an abundance of plants will spring up without further trouble. Large masses near walks through plantations are very effective. In such places they require no attention further than keeping them clear of weeds. The following are very beautiful :—

Myosotis azorica.—This is a very fine hardy species from the Azores, with heads of rich purple, changing to deep blue. It is found in damp ravines, and generally near waterfalls. Well worthy of extensive cultivation.

Myosotis montana (the Spring Forget-me-not).—This is a very fine species from Norway and Switzerland. It blooms with the melting snow, frequently with the Snowdrop, Aconite, &c. The flowers are larger and brighter than those of the Wood Forget-me-not (*M. sylvatica*). It should be grown extensively.

Myosotis palustris.—A very valuable species on account of its long-continuing autumn bloom.

Myosotis rupicola (the Perennial Alpine Forget-me-not).—This is a very beautiful species. Its large heads of deep and brilliant blue, fragrant flowers render it a very striking object. The individual blossoms are nearly circular, and frequently have a yellow eye. It does best in shady fissures, or on ledges with a northern aspect. It blooms late in spring. It should be very largely grown.

Stourton.

M. SAUL.

ON THE CULTIVATION OF THE FILBERT.

WHATEVER differences of opinion may exist respecting the management of most of our hardy fruits in regard to the amount of pruning they require, there is no question that the knife, or it may be the saw, is more freely used in the treatment of this tree than in that of any other. It is not too much to say that in the case of the Filbert fully nine-tenths of every year's growth are cut away, and often more than that ; and, if we except the Vine when pruned on the spur system, there is certainly no other fruit tree on which the knife

plays so conspicuous a part. As the Filbert is in general a free and rather fast-growing tree, the abundance of wood to choose from enables the cultivator to select that which is best adapted to give the shape he wants. This is done with so much exactness, that, in a well-managed orchard of this fruit, one tree so much resembles another that the cursory observer might suppose that they had all been turned out of one mould. A glance at the way this is done in Kent, where so many acres are under this crop, will assist the amateur in keeping his trees within reasonable bounds, and also in making them more fruitful than if allowed to grow rampant amongst other trees less vigorous than themselves.

Although occasional plantations of this fruit may be formed on stiff heavy ground, such plots are the exception, for they rarely prosper and are fast disappearing. A dry stony soil, not too shallow, without anything pernicious in the subsoil, is the one the Filbert likes best; and many hundreds of acres of the best plantations in Kent are on the slopes of hills having limestone at no great depth below. Occasionally they are also planted over chalk, but the result is less satisfactory.

Generally speaking the soils which overlie Kentish ragstone, or hassock, a soft stone which will not endure frost, are the best; and in tillage quantities of such stones, as large as a half-brick, are turned up and mixed with the surface soil, presenting anything but an inviting appearance. In such soils both the Filbert and Morello Cherry seem to thrive better than in ground of any other description, and, what is equally important, they bear well also. Such a soil is, of course, a stranger to stagnant water; and though the substratum is hard when first broken up, there is nothing in it pernicious to vegetation, as seeds will vegetate in it soon after being thrown to the top. Being of a half-sandy nature, it may with advantage be used as a fertiliser to soils of a contrary description. All the Filbert plantations are not on soil of the above description, but it is generally admitted that on such the best crops of fruit are produced. The nearer, therefore, that it can be imitated elsewhere, the greater the chance of success.

Situation has also something to do in the matter, and when a choice of this exists the western slope of a hill is the best position; but in the valley of the Medway plantations are formed on all inclinations, dryness of bottom being one of the conditions first of all insisted on, and a soil not by any means meagre in regard to depth is also necessary. The other conditions are all subservient to them. Shelter from very high winds may be useful, but this is of less consequence than for most other fruits; but very exposed places, as the tops of naked hills, are too cold and ungenial, and, though the tree will thrive there, it is seldom fruitful enough to be satisfactory. Though blooming amongst the earliest of all our fruits, the tree is far from being the hardiest. The beautiful little tufts of crimson which form the female or nut-bearing blossom are very sensitive of frost and are often damaged by it. The long green catkins, or male blossoms, which hang all the winter, are hardy enough; but if destroyed before the others make their appearance, the crop, of course, is bad. Generally speaking, however, the well-being of the crop depends on other conditions more than this; and so many things are necessary to perfect success, that the crop of Filberts is, perhaps, more capricious than that of any other fruit, although when good nothing yields a better return. Upwards of a ton weight per acre has been gathered in favourable seasons; but as Filberts are often planted in conjunction with Apples, Pears, and other fruits, the return is limited in consequence of the ground taken up by these. Nevertheless, the cultivator generally favours his Filbert trees if they do well, and the others are cut away.

Ground of the above description is generally trenched, and all hard stones that will do for road-making purposes are taken out; but such soft ones as are of no use and likely to be split up into fragments by the winter's frost are left in. I think about 9*d.* per rod for trenching the ground, and about the same per ton for such useful stones as are taken out, is often paid, and the increased value of the land well repays this outlay. This being done early in the autumn, the young trees are planted as soon as they can be conveniently got in, taking care to do this, if possible, when the ground is dry.

Many growers raise their own plants; in fact, it is common for most Kentish farmers who grow fruit for market to have a nursery where they rear large quantities of Currants, Gooseberries, and the like, as well as graft and propagate Apple and other trees by the hundred. In such places Filbert trees are plentiful enough, and they are raised from suckers, which are produced in great numbers when required, as will be shown hereafter. Small plants having about 10 inches or a foot of clear collar, and then spreading out into branches in all directions, are selected. Assuming that the plantation is intended ultimately for Filberts only, they are planted about 12 feet apart each way if the ground is good; but if not so likely to suit them, 10 feet might be substituted. Generally Currant trees, or it may be Hops, or both, are planted between to occupy the ground while the Filbert is growing, and sometimes standard Apple, Pear, or Plum trees are planted at wider intervals to remain as permanent trees; but this plan has been in a great measure abandoned, and everything is made subordinate to the Filbert when it is intended to have a first-rate plantation.

If the ground at the time of planting has been recently trenched, and much of the subsoil thrown to the top, it would be better to have a little mellow fine earth that has been long exposed to the atmosphere, and to give each tree a spadeful or two to start its roots into. This is frequently done with other fruit trees when it is necessary to plant quickly after trenching. A low-growing crop is sometimes taken off the ground. This, however, will suggest itself to the cultivator; but I have seen plenty of instances where the farmer paid £6 and upwards per acre rent, and where he found it to his advantage to allow the newly-planted trees—Filberts, Gooseberries, or Currants, also Hops—the whole of the ground, occasionally stirring it during the summer, and, of course, keeping all the weeds down. If the intending cultivator thinks he cannot afford Filberts the whole space, let whatever vegetable crop he takes off the ground be kept clear of the Filbert trees, and remove it as early in the autumn as possible. I may also observe, that if Currants or Gooseberries be planted between the Filbert trees, they may be from 5 to 6 feet apart, taking care that those nearest the Filberts are cut away in time to prevent their injuring the more permanent occupiers of the soil.

(*To be continued.*)

N. R.

OUR CONTEMPORARIES.

THE BOTANICAL MAGAZINE for April contains representations of the following:—

Peperomia marmorata.—A dwarf, branching, stove herbaceous plant, discovered by Mr. Weir, in Southern Brazil. The leaves are ovate-cordate, from 3 to 5 inches long, their upper surface of an opaque dull green, marbled with irregular longitudinal bands of white. This has been frequently shown under the name of *Peperomia arifolia*, which is, however, a very different plant, having peltate leaves.

Ericinella Mannii.—An Ericaceous plant found by M. Mann, at an elevation

of 10,000 feet, at Fernando Po, and at from 4000 to 11,000 feet on the Cameroon Mountains, where it forms an evergreen bushy erect shrub, sometimes 12 feet high. It resembles a Heath in its general appearance, and has nearly globose dull red flowers at the tips of the branchlets.

Polychilos cornu-cervi.—An Orchid discovered long ago in Moulmein, by Lobb, but which did not reach England alive till 1864, when specimens of it were sent by the Rev. C. S. P. Parish to Messrs. Low. It has the habit of a *Phalænopsis*, to which, indeed, it is referred by Reichenbach, who is of opinion that the two genera, *Polychilos* and *Phalænopsis*, ought to be combined. The flowers are yellowish green barred with reddish brown, and are produced freely during the summer months, with the same treatment as that given to other Indian Orchids.

Tacsonia Van-Volxemii.—"One of the most striking and beautiful plants hitherto introduced into Europe, easy of cultivation, and continuing a considerable time in flower. It promises to rival the *Lapageria*, and even to eclipse it. The genus to which it belongs inhabits South America, principally the valleys of the Andes, and it is stated in M. Lemaire's 'Jardin Fleuriste,' that this species is a native of the temperate region of the province of Antioquia, in New Grenada, where it is cultivated by the natives." It was introduced into Belgium in 1858, by M. Van Volxem, who found it in a garden at Bogotá, "It succeeds well in a warm greenhouse, and, according to its discoverer, it resists a temperature of the freezing point in its own country." The flowers are from 5 to 7 inches in diameter, have bright red petals, yellowish at the base, and are borne on long, slender, almost capillary stalks of from 10 to 20 inches in length.

Miltonia anceps.—Originally introduced from Brazil by Messrs. Loddiges, but it had disappeared until re-introduced by Messrs. Low & Co., through their collector, Mr. Blunt. The flowers are described as being of an olive colour, with a white lip marked with a few purple streaks and dots.

Mussaenda luteola.—Introduced by Captain Grant, the companion of Speke, in his exploration of the head waters of the Nile. It is a small, erect, slender, twiggy shrub with ovate- or oblong-lanceolate leaves, and yellow flowers having a white or yellowish calyx-leaf from one-half to three-quarters of an inch long.

The May Number contains representations of

Cymbidium Hookerianum.—Introduced by Messrs. Veitch through their collector Mr. Lobb, but also found by Dr. Hooker, probably about the same time, in the Sikkim Himalaya. It is an epiphytical species having large flowers borne on an erect scape, but nodding from the point where they are produced. In colour they are of a uniform green, but with a yellowish white lip, of a deeper yellow at the edges, and decorated with rich reddish purple spots. Dr. Hooker is of opinion that it should be regarded rather as a fine variety of *Cymbidium giganteum* than as a distinct species. It should be grown in a large pot.

Thibaudia coronaria.—Cultivated by Mr. Bateman under the name of *Ceratostemma*, by which it was sent out by M. Linden, of Brussels, and probably a native of New Grenada or Venezuela. It forms a small, much-branched, rigid shrub, with evergreen, ovate, entire, shining deep green leaves, and nodding dull scarlet tubular flowers, inflated towards their base, and five-angled.

Microcachrys tetragona.—A remarkable Conifer, presenting the unique character of bearing a fleshy brilliantly-coloured cone. It inhabits the tops of the highest mountains of Tasmania, where it forms low straggling bushes. The female cones are ovoid or globular, from one-fourth to one-third of an inch long, translucent, and bright red.

Iris reticulata.—A beautiful half-hardy species, a native of Georgia, Asia Minor, Kurdistan, Syria, and Persia, from the last of which it was re-introduced by Lieut.-Col. Scott, R.E., through his friend Capt. Smith. The flowers are 3 or 4 inches in diameter, deep violet and purple, with orange blotches, and very fragrant.

Ceropegia sororia.—A curious Kaffrarian species, allied to *C. Bowkeri*, and flowered at Glasnevin Botanic Garden by Dr. Moore, in May, 1865. The flowers are $1\frac{1}{2}$ inch to 2 inches long, pale green, with the reflexed lobes of the corolla of a darker green and transversely barred with purple.

In the June Number we find portraits of the following:—

Eulophia virens.—A native of the Nilgherries and Ceylon, and of which specimens were sent to Kew by Mr. Thwaites. The flowers of this Orchid are by no means showy, having yellowish green sepals and petals, and a whitish lip streaked with purple.

Scilla Cooperi.—A Cape bulb, with racemes of reddish purple flowers 2 or 3 inches in length.

Cupressus Lawsoniana.—Now well known as one of our most beautiful ornamental Conifers.

Warscewizella velata.—A pretty Orchid discovered by Mr. Blunt in New Grenada, and by him sent home to Messrs. Low, of Clapton. It grows about a foot high, and the flowers are borne on short peduncles, of which each tuft usually produces four. The sepals and petals are an inch long, yellowish white, and curved backwards; the lip very large, generally of the same hue as the rest of the flower, but margined with lilac and streaked with deep purple. It requires a moderately warm house, and protection from the direct rays of the sun. It flowers at all seasons, and is agreeably fragrant.

Begonia geranioides.—A rather small species with numerous white flowers, imported from Port Natal by Messrs. Backhouse, of York.

Myrsiphyllum asparagoides.—A Liliaceous plant introduced into this country by the Duchess of Beaufort in 1702, but never before figured. Although long since almost gone out of cultivation, attention is called to it "as it is one of the most elegant greenhouse climbers that can well be found; nothing, indeed, can exceed the feathery lightness of the plant when well grown and flowered; and whether on account of its graceful habit, its flowering in midwinter, the uniformity of its bright green foliage, and perfume of its pearly flowers, it is one of the plants best suited for table decoration, and ornamentation generally, hitherto introduced." It is a native of the Cape of Good Hope.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY. — The fortnightly meetings continue to be well attended, and are the means of drawing public attention to many interesting plants, and to facts in connection with these which might otherwise remain known to only a few. The Bishop of Winchester presided at that held on the 5th of June, when sixteen new Fellows were elected, and five societies admitted into union. What added to the interest of the proceedings was the presentation to Mr. Veitch of Mr. Bateman's challenge Orchid medal, a handsome gold medal of the value of £20. This was offered by Mr. Bateman to the exhibitor gaining the greatest number of marks for Orchids at the Tuesday meetings

in two consecutive years, and one of the conditions attached to it was, that whoever won it, a second medal could not be competed for by the same person until some one else had gained one. To this condition Mr. Bateman drew attention in presenting the medal, but such was the overwhelming majority of marks that Mr. Veitch had obtained, that Mr. Bateman almost began to question whether it would not be necessary to make him carry weight, if at the end of two years he again entered into competition. Mr. Veitch returned thanks in a very effective manner, and expressed his gratification at the revival of the old Regent Street meetings in the present fortnightly ones, the establishment of

which, he said, had been of the greatest benefit to the Society—in fact, had done more to benefit it than any act of the Council; and to these meetings, whether as a competitor or not, he would always give his hearty support. An instance of the reproduction of bark on a branch of the common Laurel, which had been peeled for a distance of 2 feet, excited some interest, as physiologists consider that the bark when once wholly destroyed cannot be replaced by the plant; and the Rev. M. J. Berkeley mentioned a similar occurrence in the case of an Oak tree, which, after having been barked, formed fresh bark and new wood from the ends of the medullary rays. A curious monstrosity in a Cabbage leaf also occupied attention. In this instance, from the upper side of the midrib several distinct pairs of small blades had been produced, as if several leaves had become confluent; but on examination it was found that there was no fusion of vascular bundles, the number of these being the same as in normal leaves, and it was further found that every rib was inclined to become proliferous. This monstrosity Mr. Berkeley considered likely to throw light on the production of double flowers. Mr. Bateman, after bringing under the notice of the meeting photographs of *Welingtonias* as seen in their native valleys in California, and a section of the bark at least a foot in thickness, which had been brought to the meeting by Mr. Veitch, gave a lecture on *Jonesia asoca*, flowering shoots of which came from Chatsworth; and mention was likewise made of a *Camoensia* found by Dr. Welwitsch in Africa, and figured in the "Transactions" of the Linnean Society. This is said to have milk-white flowers edged with golden yellow, and as much as a foot in length, transcending in beauty those of all other African plants. After the meeting those present had the opportunity of tasting Orchid tea, made from the dried leaves of *Angræcum fragrans*, but very few appeared to relish its somewhat medicinal taste. It is known by the name of Faham in the Island of Réunion, where, as well as in the Mauritius, it is said to be much esteemed as a beverage, and it has recently been brought into notice by a Parisian house, as having some advantages over tea.

On the 19th there was another interesting meeting, at which Mr. Bateman gave a lecture on *Fremontia californica* and the fine Orchids that were exhibited. The *Fremontia* being a hardy-flowering shrub scarcely known in this country except by name, it may be well to reproduce some of Mr. Bateman's remarks. After adverting to the limited number of yellow-flowering trees and shrubs, to which the *Fremontia* would be a valuable addition, he stated that one plant of it had been imported into this country about fifteen years ago, and that plant, the only one of its kind in Europe, was in the possession of the

Horticultural Society. At Chiswick, however, it obstinately refused to be propagated by layers, cuttings, root-divisions, or any other means, and when the Society got into difficulties the plant was sold to Messrs E. G. Henderson for from £30 to £40; but though in their nurseries it was passed from propagator to propagator, all efforts to propagate it failed, and eventually the plant was killed with kindness. Messrs. Veitch, however, having received a few seeds from the native habitat of the plant, succeeded in raising several plants, some of which were turned out of doors to rough it, at Coombe Wood and in the King's Road, and he had seen a plant of it 5 or 6 feet high on a wall, and which had been there all last winter and the winter before, and had triumphantly withstood the test. Of the ornamental character of the flowers an estimate might be formed by the specimens from Messrs. Veitch's nursery, and we might, therefore, venture to conclude, that we had here a beautiful hardy plant. The *Fremontia* belongs to the natural order Sterculiaceæ, and as seen here is remarkable for its small leaves; but in its native country the leaves are as large as those of the Fig tree, and Torrey describes the plant as having much the same appearance. It must, however, be considered much more handsome when covered with its yellow flowers, one peculiarity of which is, that they have no petals, what are seen being divisions of the calyx, or sepals. The plant is found in various parts of the northern portion of the Sierra Nevada, and is named after Colonel Fremont, who at the head of a band of daring men fought his way through hostile Indians and took the site of San Francisco, and the territory thus acquired was annexed to the United States. Among the Orchids was a magnificent spike of *Odontoglossum Pescatorei*, exhibited by Mr. Anderson, gardener to Thomas Dawson, Esq., of Meadow Bank, near Glasgow, having about sixty blooms, the first of which opened three months previously, and Mr. Anderson's system of watering Orchids with warm water, of which an account is given in another page, was also alluded to. Several other fine Orchids were also noticed by Mr. Bateman, especially the fine varieties of *Cattleya labiata*, *Warneri*, *Ruckeri*, and *Pilcheri* shown by Mr. Rucker's gardener, Mr. Pilcher.

On the evening of the same day the President held a brilliant conversazione in the conservatory, at which the Prince of Wales and about two thousand of the Fellows and their friends attended.

There was also a Show on the 14th for prizes offered by the Fellows for special subjects, to which in most classes a second prize of half the amount so offered was added by the Council. Messrs. Veitch, who took the President's prize for the best nine plants sent out in 1865, had *Adiantum colpodes*, somewhat resembling *A. capillus-Veneris*, but

with the young fronds tinged with copper colour; *Verschaffeltia splendida*, a beautiful Palm; *Alternanthera spathulata*, a native of Brazil, with red foliage of various shades; *Peperomia maculosa*, with thick, silvery-veined, concave leaves; *Dieffenbachia Weirii*, with deep green leaves, conspicuously blotched with pea green; *Dracaena nigrescens*, with very dark foliage; *Bertolonia pubescens*, with olive green leaves broadly edged with bright green; a Juniper from the north of China; and *Gymnogramma flexuosa*, an elegant kind, with a shining black rachis. The second prize, in the same class, added by the Council of the Society, went to Mr. Bull, who exhibited *Verschaffeltia splendida*, *Dracaena nigrescens*, the white-variegated variety of *Selaginella Martensii*; *Terminalia elegans*, with leaves resembling those of *Pavetta borbonica*, but trifoliate; *Coprosma Baueriana variegata*, with obovate leaves variegated with cream-colour; *Cycas plumosa*, with rush-like foliage; *Saurauja sarapigicensis*, with handsome leaves having reddish brown midribs; *Aueuba japonica foemina elegans*, with the foliage marked with creamy blotches, sometimes occupying three-fourths of the entire leaf; and *Asplenium myriophyllum*, a slender species, with finely-divided fronds.

Mr. Williams was first for the best nine plants sent out in 1864 and 1865 with *Anthurium Scherzerianum* and *cordifolium* or *magnificum*; variegated Pampas Grass; *Calamus Impératrice Marie*, a graceful Palm; variegated New Zealand Flax; a good plant of *Agave Schidigera*; *Phalænopsis Lüdde-manniana*; *Dieffenbachia Baraquiniana*, and *Dracaena Cooperi*. Messrs. Veitch were second with *Dieffenbachia Weirii*; *Dracaena nigrescens* and *Cooperi*; *Anthurium cordifolium* and *Scherzerianum*; *Cypripedium Pearcei*, with two blooms, having short tails; *Gymnogramma Pearcei*, a graceful greenhouse species; *Pandanus ornatus*, with glossy green leaves varying in intensity of colour according to their age; and *Prumnopitys elegans*, a Conifer having glossy Yew-like foliage. From Mr. Bull, to whom an extra prize was awarded, came *Zamia eycadæfolia*, *Anthurium cordifolium*, *Pandanus ornatus*, *Dracaena Cooperi*, *Maranta Van den Hecke*, handsomely banded with white; *Podocarpus macrophyllus variegatus*, having dark green leaves variegated with white, intermixed with others wholly white; a large green-leaved female *Aucuba*; *Zalacea Wagneri*, and *Salpichlæna volubilis*, with large, deep green fronds. Prizes for tropical and sub-tropical fruits, Strawberries in pots, and Filmy Ferns, were offered respectively by Mr. W. Wilson Saunders, Dr. Hogg, Mr. G. F. Wilson, and Mr. Alexander Scrutton, but there were no competitors.

An account of the other subjects shown has been given by "Quo" in a previous page.

ROYAL BOTANIC SOCIETY.—The June Show took place on the 6th, and though so closely following the International there was an air of freshness in the display that could hardly have been expected, and it was, too, well attended by visitors, a point of vital importance in exhibitions of any kind, and especially those which are in a great degree dependant (as horticultural shows are), for their financial success on the fineness of the weather. Stove and greenhouse plants were numerous and fine, though scarcely equal as a whole to what they were in May. Messrs. Peed, J. Wheeler, Donald, Carson, and C. Smith took the chief honours in the Amateurs' classes, and Messrs. Rhodes and Lee in those for Nurserymen. Azaleas were over, and pot Roses not equal to what they were at the previous show; Heaths were numerous and good, and Pelargoniums, as shown by Mr. Turner and Mr. Bailey, magnificent. Some of those from the latter were between 4 and 5 feet across, and exhibited a profusion of bloom that we never remember to have seen before. Nor must Mr. Fraser, of Lea Bridge, be denied his meed of praise, for his plants were excellent, though not coming up to those from Mr. Turner and Mr. Bailey. Of new plants Messrs. Veitch contributed a fine collection, and another came from Mr. Bull. Orchids were not so numerous as usual, and several of them had already done duty at South Kensington. Among them was a new *Oncidium*, named by M. Reichenbach O. Marshallianum, after Mr. Marshall, of Enfield, by whose gardener, Mr. Wilson, it was shown. The flower measured quite $1\frac{1}{2}$ inch in diameter, and had a clear yellow lip and brown petals and sepals. Fine-foliaged plants and Ferns were well represented in collections from Messrs. Williams, Barnard, Young, of Leigh Park, and Taylor, of Highgate. In Hardy Ferns Messrs. Ivery, as usual, carried all before them.

Of fruit, the most remarkable specimens were the Queen Pine Apples from Mr. Miller, gardener to Lord Craven, Combe Abbey, who was first for that variety with a handsome fruit of $5\frac{1}{2}$ lbs., and he also exhibited half a dozen weighing 4 lbs., 4 lbs. 7 ozs., 4 lbs. 10 ozs., 5 lbs., 5 lbs. 3 ozs., and $5\frac{1}{2}$ lbs., an excellent proof of good cultivation, for one fine fruit may be more due to chance than to good cultivation, but not so half a dozen from the same garden at one time. Black Hamburg Grapes, especially those from Mr. Meredith and Mr. Clement, were excellent, and those from other exhibitors were generally very good; so, too, was Black Prince from Mr. Hill, gardener to R. Sneyd, Esq., Keele Hall, and Mr. Meads, Minley Manor, two competitors who always run each other closely for this variety, and who received equal first prizes, but the bunches were not equal to those exhibited by the same growers in former years. Of Muscats

the best came from Mr. Turner, of Slough. Melons, Peaches, Nectarines, and Cherries, though good, were not remarkable.

CRYSTAL PALACE ROSE SHOW.—This was held on Saturday, the 23rd, and though the display was more limited than in previous years, it was still very extensive, and despite of the drawbacks of a late season and a severe storm on the previous Thursday, which completely destroyed for exhibition purposes the best blooms of the London growers, the Show as a whole was very good. Notwithstanding the counter-attraction of a Volunteer review in Hyde Park, the attendance of visitors was very large, as may be judged from the fact that up to Friday night six thousand tickets were sold, in addition to which the admissions by season tickets and payment at the doors were very numerous. Owing to the circumstances already adverted to, a large proportion of the blooms were far from perfect, and others, though large, wanted the desirable degree of refinement; but, on the other hand, many were remarkably fine.

Class I. was for ninety-six varieties—a long number, in which only a large grower can hope to compete creditably, and which we imagine might be advantageously reduced to seventy-two, as at the National and Birmingham Rose Shows, still the stands, considering all things, were very good. Mr. Keynes, of Salisbury, in this as in the other Nurserymen's classes, was successful in obtaining the first prize with stands containing, amongst others, Madame Charles Wood, Comtesse de Chabillant, Cloth of Gold, Xavier Olibo, dark-shaded crimson scarlet, a variety which attracted much attention Pierre Notting, violet-shaded crimson; Marguerite de St. Amand, rose; Triomphe de la Terre des Roses, violet-shaded rose; Triomphe de Rennes; Prince Camille de Rohan; Madame Rivers; America; Maurice Bernardin; Souvenir de William Wood, almost identical in colour with Prince Camille de Rohan; Vicomte Vigier, Gloire de Dijon, Alphonse Belin, bright and lively in colour; Victor Verdier, Mdle. Bonnaire, white, slightly tinged with pink in the centre, very delicate in colour; Gloire de Vitry, Kate Hausburg, and Maréchal Niel.

From Messrs. Paul & Son came excellent blooms of Charles Lefebvre, Pierre Notting, Maréchal Vaillant, Comtesse de Chabillant, Mdle. Marie Rady, François Louvat, Xavier Olibo, Duke of Wellington, Denis Helye, Alphonse Damaizin, Gloire de Dijon, Duc de Rohan, Vicomte Vigier, Alba Rosea, Amiral La Peyrouse, Madame C. Crapelet, Madame C. Joigneux, Madame Caillat, Prince Camille de Rohan, Maurice Bernardin, Charles Wood, Beauty of Waltham, and last and finest of all, Maréchal Niel, a glorious bloom, by far the finest of the many fine blooms exhibited of that beautiful variety. In the stands of

Mr. Mitchell, Piltown Nursery, Maresfield, we remarked John Hopper, very fine; Julie Mansais, a pretty Tea; Madame C. Wood; Hippolyte Flandrin, very large and full; Souvenir d'Elise, Maréchal Niel, Gloire de Dijon, Madame C. Crapelet, Madame Vidot, Caroline de Sansal, Général Jacqueminot, and Madame Rivers. From Mr. Turner, Slough, many of those already named were noticeable; also Leopold Premier, Madame Maurin, Comte Cavour, Duc de Cazes, Madame D. Douville, Princess of Wales, Blairii No. 2, Charles Lefebvre, very fine; and M. Joigneux, dark centre, backed by rosy crimson outer petals, forming a striking contrast.

Awards—first, Mr. Keynes; second, Messrs. Paul & Son; third, Mr. Mitchell; fourth, Mr. Turner; fifth, Messrs. Francis & Co.

Class II., forty-eight varieties, three trusses, generally affords a very effective display, and such was the case here. Mr. Keynes again took the first place with, among others, Victor Verdier, Maréchal Niel, very fine; Madame Sertot, Madame Charles Wood, Madame Moreau, Sénateur Vaisse, Pierre Notting, Marguerite de St. Amand, Vicomte Vigier, Victor Verdier, Maurice Bernardin, and Centifolia rosea. From Messrs. Paul & Son, the most remarkable were Maurice Bernardin, Olivier Delhomme, Charles Lefebvre, La Brillante, glowing crimson scarlet; Comtesse de Chabillant, Prince Camille de Rohan, very fine; Beauty of Waltham, Princess Mary of Cambridge, Madame Rivers, Xavier Olibo, Madame C. Crapelet, Lafontaine, Mathurin Regnier, and splendid trusses of Maréchal Niel. In the trusses from Messrs. Francis, of Hertford, were buds showing prominently above the surface of the stands, thus relieving that flatness which stands of cut blooms usually present.

Awards—first, Mr. Keynes; second, Messrs. Paul & Son; third, Mr. Mitchell; fourth, Mr. Turner; fifth, Messrs. Francis.

In Class III., twenty-four varieties, three trusses, we noticed in the stands of Messrs. Keynes, Turner, Paul & Son, and Fraser, good trusses of many of the varieties shown in the preceding class, Paul Ricaut, Louise de Savoie, Prince Henri de Pays Bas, Anna de Diesbach, Devoniensis, and Charles Lefebvre particularly good.

Awards—first, Mr. Keynes; second, Mr. Turner; third, Messrs. Paul & Son; fourth, Messrs. Francis; fifth, Mr. Fraser.

In Class IV., twenty-four varieties, single trusses, and in Class V., twelve varieties, were fine blooms of Souvenir de Malmaison, Maréchal Niel, Madame Vidot, Devoniensis, Gloire de Dijon, Madame Maurin, Charles Lefebvre, Madame Damaizin, John Hopper, and Mrs. Rivers; also Madame Moreau, Marguerite de St. Amand, Achille Gonod, and Belle Normande, all unusually large, but somewhat rough.

Awards—For twenty-four: first, Mr.

Keynes; second, Mr. Turner; third, Mr. Walker, Thame. For twelve: first, Mr. Keynes; second, Mr. Turner; third, Messrs. Francis; fourth, Mr. Walker.

In Class VI., for thirty-six trusses (Amateurs), Mr. J. T. Hedge, Reed Hall, Colchester, had fine examples of *Général Jacqueminot*, *Le Rhone*, *Mathurin Regnier*, *Beauty of Waltham*, *Cloth of Gold*, and *Maréchal Niel*; and Mr. J. W. Chard, Salisbury, *Madame C. Wood* in beautiful condition, and *John Hopper* large and fine. In other stands were very good examples of *Madame Victor Verdier*, *Emile Dulac* (beautiful bright rose), *Comtesse de Courcy*, *Triomphe de Caen*, *Prince Camille de Rohan*, *Princess of Wales*, *Madame Bravy*, *Maurice Bernardin*, and *Niphetos*, the exhibitors being Mr. A. Moffat, gardener to Hon. Mrs. Maynard, Dunmow; Mr. Wright, gardener to Mrs. Ramsden, Twickenham; Dr. Cooper, Slough; and Messrs. Plester, Ingle, Laxton, A. H. Kent, Bristowe, Moore, Marcham, Dennis, Postans, and Hollingworth.

Awards—first, Mr. Hedge; second, Mr. Chard; third, Mr. Moffat; fourth, Mr. Wright; fifth, Dr. Cooper.

In other classes we remarked very good examples of *Senateur Vaisse*, *L'Enfant Trouvé*, *Charles Lawson*, *Madame Boll*, *Pauline Lanzaeur*, *Le Rhone*, *Celine Forestier*, *Comte de Nanteuil*, *Madame Boutin*, *Souvenir d'un Ami*, *Caroline de Sansal*, *Olivier Delhomme*, *Madame Vidot*, *Comtesse de Chabillant*, *Charles Lefebvre*, *Mdlle. Bonnaire*, and *Maurice Bernardin*, and many more might be added if any advantage could result from giving a mere list of names. Taking all circumstances into consideration the amateurs' classes were very creditable.

Awards — For twenty-four: first, Mr. Moffat; second, Mr. Hedge; third, Mr. Chard; fourth, Mr. Stoddart, gardener to J. G. Rebow, Esq., M.P., Colchester; fifth, Mr. Mercer, Staplehurst; extra, Mr. Wright. For eighteen: first, Mr. Hedge; second, Mr. Moffat; third, Mr. Dennis, gardener to H. S. Hayward, Esq., Hurst Green; fourth, Mr. Chard; extra, Mr. Ingle. For twelve: first, Rev. V. Knox Child; second, Mr. Hedge; third, Mr. Ingle; fourth, Mr. Dennis; extra, Mr. W. Lacey, gardener to C. S. Mortimer, Esq., Morden Park.

Baskets or vases of Roses exhibited much sameness, March's stands being, with one exception, employed by all the prizetakers; and the blooms rested on various Ferns at the base, and were interspersed with these in the top dishes. Mr. Ingle, gardener to C. G. Round, Esq., Colchester, was first with an arrangement in which the glass stem was entwined with a variegated *Jasmine*, and *Maidenhair Fern* was introduced among the blooms in the top dish. Mr. Hedge was second, and Mr. Marlow, gardener to J. Wigan, Esq., Mortlake, third, both using variegated *Japanese Honeysuckle* up the stem. Mr. March

was fourth with an elegant glass stand, consisting of a dish placed on a silvered glass plateau, and a central column to which three chains were attached; against this column a shoot of *Cissus discolor* was placed, and round its base *Rose* blooms. Messrs. Carter & Co. contributed some neat hanging-baskets mossed with *Selaginellas*, and filled with *Roses*, *Dracænas*, and *Cordyline indivisa*; and hanging-baskets were also shown by Messrs. Cutbush and by the Crystal Palace Company. Those from the latter were of small size, and suitable for placing on a table or similar position; they were made of wickerwork, and the basket was suspended by a wicker chain from a tripod of the same material. Other baskets were supported on small green-painted iron tripods. The most effective exhibition in this way was the *Leicester Vase*, measuring from 7 to 8 feet in diameter, and formed of iron ribs some inches apart, secured to a central ring; and these being turfed over, the vase was filled with a row of *Coleus Verschaffelti*, then with *Geraniums*, *Mignonette*, and *Hydrangeas*, with a tall pyramidal *Fuchsia* in the centre.

Roses in pots were not in the fine condition that they were seen earlier in the season. The best twenty-five came from Messrs. Paul and Son, Mr. Turner being second, and Messrs. Francis third. Messrs. Paul & Son also received a first prize for the best twelve sent out in 1865.

For new Roses Messrs. Paul & Son were first, and Mr. Keynes second; but the varieties were generally not in a condition for their merits to be satisfactorily determined. *Maréchal Niel* was that which attracted the greatest amount of attention, and never has that variety been so numerously exhibited or so fine. *Xavier Olibo*, to which allusion has already been made, was also fine; and *Souvenir de William Wood* very much in the way of *Prince Camille de Rohan*, seemed a good dark Rose. *Madame Victor Verdier* was very fine, and of others *Frederick Biborel*, *Pierre Notting*, *Marguerite de St. Amand*, *John Keynes*, and *Monsieur Boncenne* were very good.

Among miscellaneous subjects were *Variegated Maize* and several pretty tricolor-leaved and *Zonale Pelargoniums* from Messrs. Carter and Co. Messrs. Downie, Laird, & Laing exhibited *Wiltshire Lass*, a remarkably fine pink variety, with very large trusses; fancy and bedding *Pansies*, of which *Imperial Blue* was very attractive; an unnamed *Zonale Pelargonium* with leaves 5 inches across, pale green, marked with a bronzy zone; and *Stanstead Rival*, with very large salmon scarlet pips. Mr. T. Smith, Long Wittenham, exhibited a *Delphinium*, called *Smithii*, with large deep blue flowers with a white eye; and Mr. S. Brown, Sudbury, *Invincible Sweet Pea* and some pretty early-flowering *Gladioli*. The most striking of these were *Insignis*, rich

salmon, blotched on three petals with bright violet; Eclipse, pink and white; and Incomparabilis, cream and violet crimson.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The 23rd anniversary meeting was held at the London Tavern on Wednesday, June 27th, Sir Charles Wentworth Dilke, Bart., M.P., presiding. The company, we regretted to see, was not so numerous as usual. Among those present were Professor Bentley, the Rev. Joshua Dix, Dr. Hogg, Messrs. T. Brandreth Gibbs, R. Wrench, G. Child, Bull, Edmonds, Gibson, J. & C. Lee, W. Paul, Turner, Veitch, Williams, Cutbush, &c. The Chairman, after the usual loyal toasts, in proposing "Success to the Institution," announced amidst loud cheers the munificent donation of £1000 made to the funds of the charity out of the surplus proceeds of the International Horticultural Exhibition; and, besides, upwards of £260 was collected at the dinner. Among other toasts were "The Chairman," "The Treasurer," "The Royal Horticultural and Botanic Societies, and the Executive Committee of the International Horticultural Exhibition," coupled with the names of Dr. Hogg, the Rev. Joshua Dix, and Professor Bentley, who severally returned thanks; and "The Nursery and Seed-trade," coupled with the names of Mr. James Veitch and Mr. G. Child. Sir C. Wentworth Dilke announced that Sir Robert Peel would take the chair at the next anniversary.

FERTILISATION OF COBÆA SCANDENS.—This plant, sown on a hotbed in March and planted out in May against a wall with a south, east,

or other warm aspect, only begins to flower in the end of June, a period at which the highest temperatures commence to occur. Notwithstanding these conditions, fertilisation rarely takes place at that period, and this circumstance is to be regretted, because if the first flowers produced seeds these would be under favourable conditions for ripening. It is, however, only about September, when the temperature is comparatively low, that many flowers set and yield seed, and then the season is too far advanced for ripening. From observations which I have continued for three years—viz., from 1862 to 1864, I find that with a temperature of from 77° to 90° the anthers burst and are dried up long before the stigma is ready for the pollen, whilst in September, when the temperature only ranges from 60° to 68°, the organs act in harmony with each other. As fertilisation cannot take place naturally while the temperature is high, as in July and August, and as on the other hand it is desirable to gather the seeds early in the season, artificial fertilisation must be resorted to. As fresh flowers open every day, and the pollen is fit to perform its office in a few hours afterwards, this should be applied to the stigma of flowers which have expanded the preceding day, and in this way the perfect ripening of the seeds is almost a certainty.—(*Horticulteur Francais.*)

ARALIA SIEBOLDI.—We learn from the "Revue Horticole" that this plant has fruited in the open air at Cherbourg, producing five hundred fruits, each containing four perfectly ripe seeds.

CALENDAR OF OPERATIONS.

GREENHOUSE.

Mixed Greenhouse.—A host of things may be grown here for the next two or three months. Fuchsias, Japan Lilies, Kalosanthus, will take the place of Pelargoniums and Calceolarias; in addition, some showy annuals should be grown for the purpose. Balsams, Cockscombs, Thunbergias, &c., will all help to make a gay appearance. *Camellias and Azaleas.*—If the proper treatment has been followed, Camellias will have their bloom-buds for next year discernible; when such is the case, gradually allow more air, to inure them by degrees to out-door treatment. In placing them out, select a shady well-sheltered spot; worms must be prevented from getting into the pots, and secure them from being blown over. Water as occasion may require. Greenhouse Azaleas will require similar management, but are longer in forming their buds, and will bear exposure to the sun. Keep down thrips. *Cinerarias.*—Seed should now be sown. The cuttings on the first-cut-down plants will now be long enough to take from

the old stools. These should be struck in fine sand, in cool frames facing the north, potting them off singly in very small pots as soon as struck. If mildew appear sulphur the plants affected without loss of time. *Pelargoniums.*—The general cutting-down is now at hand; cuttings strike freely in an old hotbed, first putting in sufficient soil to raise them up near the glass.

CONSERVATORY AND SHOW-HOUSE.

As most greenhouse plants will now be out of doors or in frames, their place in these houses may be filled with some kinds of hardy stove plants, Orchids in bloom, Fuchsias, Kalosanthus, and Neriums. Do not fail to keep up a supply of Mignonette; keep the internal borders damp, where vigorous roots exist; and attend to the requisite cleanliness required by both house and plants.

FORCING.

Make fires in dull damp weather in the case of late Grapes in bloom, and such as are colouring; give air at every opportunity. As the crops of forced *Peaches* are gathered, well

wash the trees, daily, to destroy red spider, shutting the house up close. Give air again by night; a warm well-aired atmosphere by day, and a cold one by night, will assist the ripening of the wood. *Pines*.—Give air liberally to ripening fruit. Keep those plants swelling fruit moist at the root, and syringe daily. Pot successions; keep the bottom heat at a steady point, 85° to 90°. Air by night in warm weather will strengthen young stuff; pot suckers for succession. *Melons*.—Give plenty of light and air to ripening fruit. See that the roots get no check, either by the bottom heat declining, or through want of water when the fruit is swelling; sow for the last crop, and earth-up succession crops. *Cucumbers*.—Shade, or the fruit will be bitter.

KITCHEN GARDEN.

Every piece of vacant ground should now be cropped with the various Broccolis, Borecoles, Brussels Sprouts, Savoy, &c., for winter and spring supply. The above should have been transplanted before their final planting; should the disposable ground not be sufficient, plant a quantity out rather thickly for replanting as more ground becomes vacant. The principal crops of Celery and Leeks should now be got out; sow the last crops of Peas and Broad Beans; successions of Lettuce, Cauliflowers, Spinach, &c., may yet be sown.

HARDY FRUIT.

Pears and Plums against walls, where at all vigorous, should have about a fourth part of the uppermost growth of young wood removed, cutting back to two or three joints; towards the end of the month the next part may be removed. Peaches and Apricots will require the summer wood nailed in; still keep a watch for insects, and attack them with the engine when found. Net Cherries, and stop and nail in the young wood of Vines. Strawberries must be layered immediately the runners are formed either for forcing or forming new plantations.

FLOWER GARDEN AND SHRUBBERY.

When once the summer plants are on the move, the principal points to attend to will be tying up or pegging down, as may be necessary, watering in dry weather, and great attention must be paid to order and neatness in every quarter. *Roses*.—Decaying blossoms should be cut off with long stalks, and always to another bud. Where required for exhibition, it is often desirable to thin out some of the buds; in dry weather liquid manure much increases the beauty of the flowers.

FLORISTS' FLOWERS.

Auriculas.—These will remain for the present in the cool, as previously directed. If the border is well drained, it will take considerable rain to injure them; wet in excess would, however, be injurious, and from it, therefore, they should be protected. The soil intended for repotting them should be turned

over occasionally, and not allowed to become either very dry or very wet. *Carnations and Picotees* should be frequently gone over with the watering pot, if dry weather prevails; a check at this stage of their growth would be very prejudicial to the bloom. Weak liquid manure may be used occasionally. The grower for exhibition is fully aware of the importance of keeping down insects, particularly aphides. The more clean and healthy the plants are in a young state, the less thrips are there to contend with in the blossoms. Tying the buds with a small piece of bast just as they are on the point of bursting, protecting them as soon as they are open, and placing cards on the finest flowers as soon as the guard petals have dropped, will engage the attention of those that cultivate these beautiful flowers successfully. Should any pots have more layers than there will be room to put down, the smallest shoots should be taken off, and struck in a similar manner to Pinks. It should also be done early, at the same time as Pinks are put down, and a month before it is necessary to commence layering. *Dahlias*.—Planting will now be completed, and for a month hence there will be but little trouble required. The principal attention needed will be watering over the foliage with soft water in the evening, using a good rose, watering once a week in addition, if the weather is dry. Insects, particularly earwigs, should be exterminated. *Hollyhocks*.—Cuttings may be put in to a considerable extent this month, as, by taking the small side-shoots for the purpose, strength is thrown into the flower-spikes. *Pansies*.—The first cuttings will be struck by this time, and should be planted out to bloom in September and October, when they will produce healthy cuttings at a season when it is no trouble whatever to strike them. This is not the case in the summer months. Nothing is more difficult to strike in hot drying weather than Pansies. However, all the cuttings that can be procured during July should be put in, as the plants will frequently go off at this season in large numbers, and give but little indication from their appearance of such a result being about to take place. Seed can be procured freely this month, but it will not be so good in quality as that saved in July. *Pinks*.—The general propagation of these should now be proceeded with. If the top of the leading shoot is taken off with great care, the plant will produce a large number of small shoots, which will strike readily towards the end of the month. Seedlings should be selected carefully as soon as they are in bloom; only those with smooth edges and distinct, well-defined lacing should be grown another season, to finally ascertain their quality. *Tulips*.—These having been taken up as directed, clean the bulbs as soon as sufficiently dry. Place the cabinet containing the bulbs in a cool, dry place, where they will remain quietly for some time.



TACSONIA VAN VOLXEMII.

TACSONIA VAN-VOLXEMII.

WITH AN ILLUSTRATION.

OUR figure of this remarkably beautiful Passion-Flower has been prepared from specimens obligingly furnished some time since by Mr. R. T. Pince, of Exeter, who thus describes his method of treatment :—

“*Tacsonia Van Volxemii* is undoubtedly one of the finest conservatory climbers ever introduced, second only to the justly and universally admired *Lapageria rosea*. The healthiness, vigour, and rapidity of its growth combine to make it highly desirable for producing immediate effect in conservatory decoration. The flowers, which are of a rich rosy crimson colour (fully 5 inches in diameter), are freely produced from the axil of each leaf, and are gracefully suspended on long slender footstalks a foot in length, so peculiarly slender and thread-like that the flowers hang, as it were, clear and detached from the foliage, and have the appearance of brilliantly-coloured parachutes suspended in the air. Our plant was put into our show-house (the temperature of which is only that of an average conservatory, air being freely admitted, and the thermometer frequently falling as low as 38° to 40° in winter), in the middle of April, 1865, and by the end of January it had covered the ornamental rafter which spans the house, had been clothed with flowers all through the summer, and was still adorned with them. The foliage is also remarkably good, and free from that coarseness which detracts much from other *Tacsonias*.

“Our plant is growing in a mixture of rough peat, loam, and coarse sand with abundance of drainage, and plenty of pieces of broken brickbats, crocks, sandstone, and old lime rubble, mixed in with the soil. Occasional syringing and copious supplies of water to the roots during summer and autumn promote luxuriant growth. It may be requisite now and then to cut back vigorous shoots which have flowered, in order to bring up fresh flowering-stems. From the pendent position of the flowers, it is obvious that this beautiful climber can be seen to better advantage trained to a rafter or the roof of the conservatory, than if put against a wall. I have alluded to its comparative hardiness, in support of which, and in addition to the general lowness of the temperature of our show-house, I may say, in conclusion, that we had a plant of it growing luxuriantly on an eastern wall out of doors, during the summer and autumn of 1865.”

This charming creeper is a native of New Grenada, where it is cultivated in gardens under the name of *Courouba*. It found its way into Europe a few years since through M. Van Volxem, a Belgian traveller, after whom it has been named by M. Funck ; but it has remained comparatively little known in this country till the beginning of the present year, when Mr. Pince invited public attention to its very showy character. M. Van Volxem states, that in the places where this plant is found, the thermometer often descends below the freezing point, a circumstance which quite accords with the experience of cultivators as to its comparative hardiness, the shelter of a greenhouse or cold conservatory being found sufficient for it.

The flowers are quite remarkable for the long, slender, thread-like stalks by which they are suspended.

M.

CULTURE OF THE GENUS KALOSANTHES.

THIS showy and beautiful tribe of plants well merits the attention which has of late years been bestowed on its cultivation. As a late summer decorative plant the *Kalosanth* is very useful, flowering from July to September. It

is very easily cultivated, indeed it will grow well and flower under conditions and treatment that would be certain destruction to many decorative plants. Cuttings put into sandy soil and plunged in a little heat root freely; they will strike in almost any situation under glass if kept tolerably dry, but will be longer in doing so than when placed in heat. When rooted they should be potted off and stopped back to cause them to throw out shoots.

Plants with half a dozen or more shoots should be selected in spring for growing into specimens. These should have their shoots stopped, and after they have broken they should be very carefully potted, giving them a liberal shift. The pots should be well drained. A compost of two-thirds peat and one-third turfy loam, with plenty of sand, will suit them admirably, putting in plenty of small pieces of broken pots among the soil. When potted, to start them into growth, the plants should be placed in a house or pit where they can have a temperature of from 50° to 55° by night and of 65° to 70° by day, rising to 80° or upwards with sun heat. The plants should be kept near the glass, and they should have a moist atmosphere until they begin to grow freely, when a drier atmosphere and more air will be required. Water should be given sparingly at the root until they begin to grow freely and take hold of the fresh soil.

Towards May the plants, if kept in pits, should have abundance of air at all favourable opportunities. If they cannot have this where they have hitherto been growing, they should be removed to a warm part of the greenhouse where they can have plenty of air and full exposure to the light. With careful attention in watering they will become strong and grow vigorously. Towards the middle or end of July they may be placed out of doors for a few weeks. The principal point now to be attended to is the important one of well ripening the young growth that has been made, and for this purpose the plants should have all the sunlight possible. They should not remain out of doors later than the first week in September unless the weather be very fine, when they may be kept out a week or two longer.

The plants are best wintered in a greenhouse; they will, however, do very well in a pit, but it requires considerable care to keep it dry and well aired. During the winter months water should only be given when absolutely necessary; but on the return of spring, when the days lengthen and the plants get more air and light, water will be required more frequently, and as the season advances it should be given liberally. Under this treatment the plants will be objects of great beauty in July, and will continue so until the end of September.

When very large specimens are required the plants should not be allowed to flower in the second season, but should be stopped in the previous July; they would then push out more shoots, and in the spring of the second year they should again be stopped. When they have broken they should all be shifted into larger-sized pots, giving the strongest and most vigorous plants liberal shifts, well draining the pots, and using a compost the same as before, but if anything in a rougher state. When potted they should be placed in the warmest part of the greenhouse, and be kept rather close for a few days. As soon as they begin to root freely into the fresh compost they should have plenty of light and air. Water should be given carefully until they be pretty well rooted. They may be syringed occasionally after warm days. As the season advances they will require liberal supplies of water, and an occasional watering with liquid manure will be very beneficial. Under this treatment, and with abundance of light and air, they will make strong, robust growth.

In August the plants should be set out of doors in a sheltered, sunny, open situation where the young shoots can get well matured. They may be wintered in a cool, airy part of the greenhouse, and should only have water given them

when necessary. On the return of spring, when the days lengthen and the plants get more heat, light, air, and water, the flower-buds will begin to show themselves. As the flower-stems advance in growth they should be tied neatly to stakes, both to support and prevent them from breaking, and to give the plant the shape required. When the flowers begin to expand the plants should be shaded in bright weather, and they must be liberally supplied with water while they are in flower. If shaded, the plants will continue in bloom seven or eight weeks, and when in perfection there are few finer objects.

If the plants are required to be grown again after they have done flowering, they should be cut down immediately after they have gone out of bloom, in order that they may break and make a little growth before the autumn gets too far advanced. As these plants require one entire season to make the young wood and set the buds, and another entire season to perfect the flowers, it is desirable to have a number of plants, and to flower one half of them one season and the other half in the following year.

As Kalosanths are very useful for in-door decoration, cuttings should be put in every season, and a number of small plants grown for the purpose. They make fine plants for vases, and form very gay beds in the flower garden during August and September. As the plants when in flower are very showy and ornamental, and as they are very easily grown, a good stock should be always kept on hand; they are useful for so many purposes.

Stourton.

M. SAUL.

OLD FAVOURITES.

WE move so rapidly, and take such giant strides now-a-days in some branches of horticulture, promoting International Horticultural Exhibitions, and similar great enterprises, that there is some danger of our forgetting, or, if not forgetting, pushing aside some old favourite flowers that at one time were to us so captivating that we looked anxiously for their appearance, and welcomed them as

“Stars, to tell us Spring is born.”

Not that the old love has been thrust off by the new—a true florist rarely jilts an old flame—but big concerns and stirring enterprises engross our time, and the old and seemingly less important ties are partially sundered.

I remember how a few years ago the varieties of double Primroses were largely used for spring flower gardening before there sprung up such a general liking for some of the odd and fantastic forms that the summer flower garden now takes. If any one doubts their real use and beauty, let him pay a visit to Cliveden Gardens early in May, and he will there see what they can do to contribute towards the most pleasing effect one could desire to see. How charming do the crimson, lilac, and white varieties appear, clothed as they always are during their season with flowers! They can be used in many ways for effect to suit the taste and skill of the designer. When they have done blooming they can be removed, divided, and planted in a cool, shady border for use again in the autumn, to gild with their sweet beauty

“Returning days—returning spring.”

The Polyanthus is another flower that is ever a “welcome guest” at the birthtime of spring. The gold-laced variety, each flower having a distinct well-defined edging of gold, is getting now well known and largely grown. It seeds freely, and young plants can be obtained quickly. An old gardener has left on record this fact, as containing a rule demanding the strictest observance,

that when frost is imminent the soil should be pressed firmly round the root of the plants and brought up close to the foliage.

In some of the midland and north-western districts of England I have often been struck with the beauty of the common Cowslip, growing so freely in the fields and hedgerows. Transferred to the garden it might be advantageously used in the spring. Its yellow flowers would contrast well with the dark blossoms of the Polyanthus, and render valuable aid at its appointed time. As old Donald Beaton once informed us, "Cowslips come like Polyanthuses, but all looking down the contrary way. Polyanthuses come in umbels or heads of so many flowers on the top of one stalk, and every flower looking up. The Oxlip, which is a hybrid between the Cowslip and the Primrose, comes with the guard flowers, or outside flowers of the head looking down and the centre flowers looking up, or half way between the two parents. All these are of more colours than one."

The Alpine Auricula, too, as a member of this group, can be used also with effect in the spring. In some districts, generally in the south and west of England, it will flourish well out of doors during the winter, and when it grows with comparatively little risk it should be cultivated as a useful member of the class we have been treating of.

To the foregoing may be added the double Daisy, a most invaluable agent in the hands of a spring gardener like Mr. Fleming. With him these Daisies grow lustily, flower freely, and propagate themselves rapidly. They can be had of a deep rose colour as well as pure white, and there are intermediate shades of pink as well. Immediately after flowering the plants can be lifted and divided, and planted out in some shady nook to make growth for autumn planting.

Many inquiries have been made for seed of the double Daisy; but it appears that it will not seed in England. Seed, however, is sometimes imported from Germany, but it seldom if ever grows. As before stated, by root-division a quantity of plants can soon be obtained. Their propagation does not make a large demand on the time of the cultivator; but it yields, notwithstanding, a large return, when, awakening from its sleep, the plant puts forth pretty flowerets at the summons of soft skies, vernal breezes, and lengthening days.

Quo.

ON THE CULTIVATION OF THE FILBERT.

(Concluded from page 152.)

It has been remarked that no fruit tree is pruned with more severity than this, and long experience has proved that without doing so a good crop of fruit need not be looked for. Some judgment is also wanted to start the tree into the proper shape at first, and a glance at those of mature age will show how this is to be effected. The universal custom in Kent is to train the tree into a sort of basin shape, not unlike the ribs of an umbrella when inverted; and in the adult tree, the edges or tips of all the branches radiating from the centre being of a uniform height of about 5 feet, a great similarity exists amongst the trees which compose a plantation, and if the ground is level the eye of the spectator will skim over the whole. Their height and uniformity are very striking after they are newly pruned, but, of course, when the summer's growth is going on they are widely different, and show as rampant a growth as that of any plant I am acquainted with, some of the shoots being little short of 8 feet long, straight and tapering like an Osier wand. Those of the young plants are rarely so long, and it is to these that we have more especially to direct our attention.

In the young plants all central and all gross shoots must be removed, and such small ones as are of a spreading tendency are left, being shortened at the tops. The Kentish mode by which another gross growth is in a great measure prevented where the former one was removed, is simply to cut out the coarse rampant shoot with a coarse-toothed little hand-saw, making a sort of haggling cut instead of the clean one caused by the knife. The saw is used, not in pruning the young trees only, but also those of more mature growth.

The pruning of the first year leaving only five or six side shoots, the number will not be much increased the second year, only a fork may be here and there introduced when the space seems wide; the rank, coarse wood being cut away as before, and the small, short-jointed pieces only left, and these shortened to the suitable length. Keep the centre perfectly open so that the sun may shine into it, and on the north side as well, or, perhaps, better than on the south side of the tree. In the third year some tiny shoots will indicate, probably, the presence of fruit-bloom; leave a few of these shortened to about 3 inches or less, and keep the remainder of the tree pruned to the shape recommended above, which is that of a basin or bowl, and do not let the permanent branches or ribs be too thick.

In the case of old trees, if the ground is suitable the summer shoots will be long and straight like many of the basket Willows, and sometimes they are used for the same purposes. From 3 to 6 feet is the average length. The first thing done when pruning commences in the autumn is to look over all the trees, and pull out by a jerk of the hand all the gross strong-growing shoots in the centre. Generally they will come out pretty well, and bundles of these are very useful for tying up plants, or such out-door flowers as only require a slender stake. The rest of the pruning is done with the knife and saw, the latter being used to cut off such strong gross shoots as it may be necessary to shorten to a couple of inches or so, and the more slender are cut back with the knife. It is seldom that more than 4 inches are left of any young shoot, and very often much less.

The short-jointed small wood generally produces the most nuts, and those most exposed are the best; but nuts are also grown near the centre of the plant, on spurs of the long main branches, and some on the subsidiary ones. Occasionally a large limb may be cut out, but this is not often the case unless disease or appearance of too much crowding points it out as necessary, or when the tree has exceeded its bounds. In the latter case it must of necessity be cut back, and the occasional bringing forward of young branches from the centre will enable this to be done on the same principle that other fruit trees are pruned; but the Filbert will bear a greater amount of spurring-back than any tree I am acquainted with. The quantity of young wood left on an adult tree each year at pruning is exceedingly small, and in most other fruits would produce disease; but Filbert plantations last a great number of years, and their bearing properties are rather enhanced than diminished by age. Each succeeding year's pruning leaves them in the same uniform shape as before, which is an open cup or basin-shaped centre, with the outer edges not more than 5 feet high. Of course, exact training to this cannot well be accomplished without tying, which is rarely adopted; but the cutting at the edges to the height above indicated leaves the tops parallel with the ground surface; and, though there are some branches near the outer edge between the ground and the edge of the basin spoken of, they are of less consequence than the framework of the tree forming the shape here described.

With regard to manure, that which is very rich, as farmyard dung, is seldom used, as tending to too much grossness. Woollen rags and shoddy are largely employed in many districts, and are great favourites with the Kentish farmers.

The rags, it may be observed, are chopped into pieces not larger than half the palm of the hand, and the shoddy is separated by tearing it open. Other manures are also occasionally employed.

Suckers from the collar are most effectually prevented by scooping away the earth all round the collar in October, forming a sort of basin about a yard or more in diameter, and exposing the main roots. The action of the frost on these roots is said to prevent the tree exhausting itself with suckers, and certainly none are produced when this treatment is adopted. The ground is again made level at the time of digging in March, the trimmings being all previously conveyed away; and if all go on well a good crop of nuts is looked for. As with all other crops, this is, however, not a certainty, as many extensive plantations in some years do not produce more than a bunch of nuts per tree—not sufficient to be worth looking for, while in favourable seasons from 10 to 20 cwt. of fruit per acre has not been uncommon. So much depends on the season, that with all the advantages of situation, skilful management cannot always command success; but well-directed skill, aided by other favourable conditions, certainly renders success more likely.

N. R.

TRACHELIUM CÆRULEUM.

I HAVE just now a good plant of the somewhat-neglected *Trachelium cæruleum*. When a year or two ago I saw it growing in a window of a friend's house in London, I was so much struck with it that I begged some seed, and have grown a plant or two every season since, as it has now become not only with myself but with my employers an established favourite.

The seed should be sown in June. This will admit of having good strong plants in 48-pots to stand the winter. In spring give them a good shift into 24 or 16-sized pots, keep them as cool and as near the glass as possible, and pinch back constantly till the end of May, by which time the plants will have two or three dozen blooming stems. As it is properly an autumn-flowering plant, the plants would be better plunged in ashes out of doors till the bloom is about to expand, when they may be carefully tied out and removed to the conservatory, verandah, or any sheltered nook where they are not exposed to the rain. The large masses of cerulean blue, often 6 inches across, which each stem will produce, will make each plant a handsome specimen, and will well repay the small amount of labour they have cost.

Of all the gardens in this locality which I have visited I have never yet seen this *Trachelium* in any but my own. I have no doubt that with a little extra pains it might be made a good specimen plant for exhibition, and would possibly somewhat astonish those who have not seen it well grown and flowered.

Maybush.

A. D.

SPRING-FLOWERING BULBS.

ONE great merit in spring-flowering bulbs is the ease with which they are made to produce their flowers. This, added to their cheapness, is the reason for which they are eagerly sought after, and certainly they are well calculated to produce a lively appearance in the garden at a time when it would be otherwise comparatively bare of flowers. Those who grow them on a large scale will by this time have given their orders, and those who fully understand their proper treatment, procure them as soon as possible after they arrive in this country, knowing full well that in such matters delays are dangerous, and

that, generally speaking, the first comers have the best choice; but for decorating villa gardens, windows, &c., they are not generally obtained till late in the year, and often not till they begin to grow in the shop windows. Experienced growers well know that in this case the bulbs are injured, although they may produce their blooms properly, because the rudiments of these are already formed in the bulbs; but then it is much better to have them in the ground before this takes place.

In the purchase of bulbs it is advisable to have an eye to the purpose to which they are to be put. For instance: if intended for decorating the borders of a villa garden, it is scarcely worth while to choose the choicer kinds of Hyacinths and Tulips; for of the former there are plenty, usually catalogued as border Hyacinths, priced at about 4s. per dozen, smaller generally than others, but equally good and oftentimes producing as good spikes of bloom as the high-priced ones. The same may be said of Tulips. There are sorts equally showy with the best—as the Van Thol, Double Tournesol, and Rex Rubrorum, which are sold at 6s. and 7s. per hundred in ordinary seasons. These answer admirably for planting in borders, and will be found less expensive than better kinds, for it must be observed that a dozen or two of Tulips or Hyacinths may seem enough to enliven a border; but experience will show that their appearance, when planted and in flower, will be very insignificant, and nothing to the fine massive effect produced by a quantity of less expensive but equally showy sorts; and even where they are not massed, but only placed about the borders in small patches, it takes a great number to make any effective display. Something may also be said with regard to colour and prolonging the season of blooming. In the former case some would object to the glare of scarlet and yellow presented by the Van Thol and Tournesol Tulips, as wearying to the eye, and certainly it is not advisable to confine oneself to them. But they may be varied by Crocuses of different colours, Snowdrops, and early Narcissus, and also by means of Hyacinths, which vary considerably. As regards the season of flowering, this may be prolonged by using such bulbs as flower successively, beginning with Winter Aconites, followed by Snowdrops, early Tulips, Crocuses, Hyacinths, early Narcissus, medium Tulips, late Narcissus, and late Tulips. These flower during the months of March, April, and May, and by a suitable arrangement they may be placed so that they may all be seen to advantage at their several times of flowering.

I once planted a bed entirely of different kinds of spring-flowering bulbs, both with the object of keeping up the display as long as possible, and of varying the colours, so that the bed while any of the bulbs were in flower presented a massive display of colour. The bulbs were all newly imported, and were planted so that they might grow and increase, which they could not do without having the proper time to form and ripen the bulbs, and as I did not intend to take them up every season the ground was trenched and manured before planting. The bed was 7 feet wide, and about four times that length. The arrangement of the bulbs was as follows:—They were placed in rows 10 inches apart across the bed; the depth of planting varying according to the size of the bulbs—that is, about 4 inches deep for Snowdrops, a little deeper for Crocuses, about 6 inches for Hyacinths, and the others in proportion. The first row consisted of early Tulips intermixed with Snowdrops; the second, of Hyacinths; the third row, of late Tulips and Crocuses; the fourth, of Winter Aconites and early Narcissus; the fifth row, of early Tulips and late Narcissus; sixth row of Hyacinths and Winter Aconites; seventh row, of Snowdrops, Scillas, and late Tulips; and so on throughout, varying and mixing the colours and sorts as far as was convenient—not the most scientific arrangement perhaps, but when in bloom the bed had a most pleasing effect.

From the time the earliest began to bloom till late in May, when the double Poet's Narcissus was in flower, it presented quite a gay appearance. By mid-summer the leaves of all but the late Narcissus had died down and were removed, and the surface of the bed was pricked up with a fork and sowed with the seed of Phlox Drummondii. By the beginning of August this began to flower and continued doing so till the following winter, after which the bulbs again came up and flowered, and the bed underwent the same course of treatment. After flowering the third time, the bulbs were taken up, the ground trenched and planted with Verbenas, and the bulbs again planted the following autumn. They had increased very much, and they flowered equally well the following spring.

This method of treating bulbs I think is preferable to the usual mode of managing them in villa gardens. They are generally put in borders already too crowded with shrubs and miscellaneous plants, are forked up, just as they begin to grow, in the usual autumn dressing of the borders, and rarely survive the second season. If by any means a piece of ground can be devoted to them, and they are managed in some such way as that described above, it will be not only more satisfactory, but the bulbs will increase instead of diminishing. I certainly would not discourage planting them in mixed flower-borders, but it is necessary for their well-doing that they have every chance of developing the foliage as well as the flowers—that they are not crowded amongst other plants; and although summer and autumn-flowering plants may be grown between them, it should be remembered that they are likely to be injured by the exhaustion of the soil caused by planting too thickly. Another thing to be observed is, the leaves should not be cut off in a green state, as is often practised, because they are said to look untidy; the leaves are necessary to the proper development of the new bulbs—a fact too often lost sight of in villa gardens, and this is one great reason why bulbs so soon dwindle away. It is also important to mark them, so that it may be known where they are when there is nothing left of them above ground.

Of the adaptability of bulbs for pot-culture much has already been said; and although the necessary materials for the purpose of growing them in pots are very simple, some would seem to imply that materials are necessary which are certainly not within the reach of all. I have grown them very successfully for years, and used different kinds of soil, and covered them with different materials, as coal ashes, sawdust, old tan, and common earth, and all with nearly the same results—in fact, I have come to the conclusion that the material they are covered with after potting is more a matter of convenience to the operator than of consequence to the well-doing of the bulbs, and that the best soil to grow them in is about one-half silky loam, and one-half of dung, rotted to a crumbling state, mixed with an equal portion of leaf mould, from leaves that have been swept up from paths, lanes, &c., and allowed to rot. These are sure to have a large proportion of grit mixed with them, which keeps the soil porous and open. If grit is not thus obtained, a suitable portion of it should be mixed up in the dung. Mix these ingredients well together, and you have a soil in which spring-flowering bulbs will thrive; but if loam is not to be got, the leaf mould as described will do alone, or any common garden soil may be mixed with it; or even if these are not readily obtained there need be no fear of potting the bulbs in any porous soil in which a tuft of grass will grow, for it is a mistake to suppose that Hyacinths, or Tulips, or Crocuses are particularly nice as regards the nature of the soil they are placed in, provided it be sweet, and free from any grubs or other destructive insects. This much, however, may be observed, that bulbs, in common with any plants that are grown in pots, are limited in the supply of soil in which they can form roots—that they have not

so much room as plants in the open ground ; consequently, the soil in the pot should be proportionately richer, or if the soil is not rich, the roots should be fed with liquid manure. Even this is only requisite when it is desired to make use of the bulbs for another year, when they must be sustained during the process of ripening as well as whilst producing the flowers.

My mode of potting bulbs is to use a soil composed of loam, dung, and leaf mould, as before mentioned. This is well mixed, and if there is not quite enough sand in it, add a little more : fine gravel will do as well as anything.

In preparing the pots, which should be perfectly clean and dry, I always place a piece of broken pot over the hole in each pot. This is placed so that it may not stop the exit of water, as it would do when the soil had worked down to it if placed with the hollow side upwards. I then place in each pot a handful of crocks broken rather small, and then a layer of rough soil. This method of draining pots I find effectual, and it is important that it should be so. The pots are next filled two-thirds with soil, the bulbs are then placed with a little silver sand under each to encourage the fibres, and the pots filled up with soil. I like to cover the bulbs to the crown, but some prefer letting them stand up half out of the soil.

For Hyacinths I like to put one in a four-inch pot, Crocuses about six, Tulips three, and Snowdrops about twelve in the same sized pot ; for Narcissus I prefer putting four or five round a larger pot, as I think they show so much better in a fine cluster ; and Hyacinths the same if they are matched in colour and height, but they sometimes vary so in height as to spoil the effect in a large pot.

When all are potted, they are placed close together on a level piece of ground where there is no chance of the water standing, the labels are then raised on sticks about 8 inches high, and all are then covered with common earth or any loose mould. I prefer this to ashes, sawdust, or any other material, as it leaves no unpleasant appearance on the surface of the soil, as ashes and sawdust do if not thoroughly cleaned off. The labels are left just above the soil, so that it is easily seen where each sort is—a matter of importance where they are to be drawn at different times for forcing or otherwise, as one can be taken out without disturbing the others. If they are not wanted for forcing it is not advisable to uncover them till March if they are in a frame. The soil may be scraped away from the crowns a little in February, and the Narcissuses encouraged, and covered up again, as they are apt to root over the sides of the pots.

For window decoration these bulbs are invaluable, and in a warm room some may be got on much earlier than others, so that a succession may be kept up for a long time. When grown for window decoration the treatment is the same as if grown for the conservatory, until they are divested of their winter covering, and then the only difference is, that in one case they have a glass roof over them, and in the other they receive the light all on one side, and are apt to get drawn out of the perpendicular. A suitable stick should be provided, or they are apt to break off with their own weight ; but in either case, after flowering, they may be planted in the borders, and they will flower there another season, although not so strongly.

All bulbs that have flowered in pots one season can be planted out in the borders, where they are more likely to come up again and flower than if kept in pots. In fact, I have known Hyacinths flower successively for many seasons after being thus turned out of pots in which they have flowered already, and while this can be done there is no need to throw any away, as a few new bulbs may be procured every year for flowering in pots, and afterwards used to replenish the borders, where they will not be lost.

Of the merits of growing, or rather flowering, Hyacinths in glasses, I have

always had my doubts. It may seem curious to have a plant growing beside one in a room with every part visible ; but I do not see any extra beauty in a glass-grown Hyacinth ; indeed, I think that the same plant would look better in a suitable-sized flower-pot, and certainly when they begin to topple over it is much easier to support them in a pot than it is in a glass. Nor are they so useful afterwards when grown in glasses, as the bulb has worn itself out in the process of flowering, and has no strength left to prepare for flowering another season ; yet the practice is carried on by a very large class, is honoured by time, and sanctioned by custom.

F. C.

MOSS ROSES.

WHAT a universal favourite is a Moss Rose ! A pure cockney is as proud to have one in his coat as a peer would be to get the blue riband of the Order of the Garter. There is no perceptible improvement going on in relation to this flower. At the recent National Rose Show there were exhibited by, I think, Messrs. Paul & Son, some cut blooms that bear names as “familiar in our mouths as household words,” inasmuch as we have been acquainted with them from childhood. Some novelty, and, not least, some quality, is required to relieve the monotony of this annual repetition. The sorts shown by Messrs. Paul & Son were Laneii, Comtesse Murinais, Cristata, Bath White, Baronne de Wassanaer, and Salet. They were all nearly of one shade of colour, and sadly wanted substance and distinctness.

B. WINTER.

BEDDING CALCEOLARIAS.

WILL some of the readers of the FLORIST AND POMOLOGIST give the benefit of their experience as to the cause of the failure of so many of the plants after they are placed in their flowering quarters in the beds ? There must be a cause, and if possible it should be discovered and a remedy sought for and applied.

I think early planting to be absolutely necessary, so that the plants may get well established before being subjected to the influence of the sun's hot rays. I planted out, in the first week in June, some plants of *Calceolaria Aurea floribunda*. The weather was moist, and almost unpleasantly cool for the time of year ; they were watered when necessary ; and by the time the hot weather set in they had become well established, and are now blooming freely and growing vigorously as well. Occasionally they receive a root-watering, and almost daily a slight sprinkling overhead. All were well and strongly rooted when they were planted out, and there has not been a failure.

Since the recent hot weather set in I have had occasion to plant a few more, using two varieties—viz., *Viscosissima compacta* and *Aurea floribunda*. The former were planted just as the hot weather set in, and though in a very exposed situation, they were kept well watered. They had plenty of roots, but the soil had become somewhat shaken out in the course of transit over a few miles. For two or three days they looked as if they meant growth, but soon a new aspect was presented, and they shrivelled up and wasted away daily. Out of a dozen good bushy plants not more than three are spared. Their decimated ranks were closed up with some strong well-rooted plants of *Aurea floribunda* removed from another bed, and which were already in flower. The flowers were pinched off, the plants kept well moistened at the roots, and nightly sprinkled overhead with a rose watering-pot. Alas ! all labour is not

profit. Soon some of these began to show evidences of the hot sun proving too much for them, and the flaccid shrunken foliage told the old tale of something being wrong. It was a case calling urgently for prompt measures. Carefully removing all foliage showing signs of decay, I gave the plants a sprinkling, then inverted over them some 24-sized flower-pots, and, going a step further, environed these with laurel sprigs to shield even the pots from the sun's direct rays. By this method I have succeeded in arresting their downward course. Some cool weather coming opportunely greatly helped my efforts; and now with but one exception, and that by no means a hopeless one, the plants look as if getting towards convalescence, having been snatched from the very jaws of death.

Now, whether this somewhat rude theory will accord with the practice of any one else or not I do not know, but it will do no harm to broach it. How does it commend itself to Mr. Fleming, of Cliveden, who is, I suppose, compelled to bed out late, as his splendid system of spring gardening would tend to postpone the bedding-out process? I say, Plant early—as early as it can possibly be done; and great care should be taken that the plants be not too much pot-bound, as sometimes when this is the case an excess of moisture first soddens and then destroys the outer roots. *Calceolarias* root very quickly into a light sandy soil, and a little should be used when the plants are placed in the beds. Carefully open out the roots of pot-bound plants. Do not plant them as unconcernedly and as carelessly as if they were so many brickbats. I have seen bedding-out performed in a way that would excite the indignation of a bishop. In August it is possible to go among flower-beds where work has been slovenly and thoughtlessly done, and pull up dead *Calceolarias* as full of vitality about the roots as drumsticks; and then a stupid gardener laments the devastation, wrings his hands, and wonders at the cause.

I say, Bed out early; and to that I add, Bed out intelligently. There will be less failures, and less of those great eyesores—beds filled up at the eleventh hour with any kind of odds and ends, no order, no taste, and hanging like a millstone round the neck of the unhappy gardener, who trembles over the uncertainty of his tenure of office.

Quo.

ON MOSSES.

Is there no way of rendering Mosses better adapted for ornamental purposes than they generally are at present? No one who gazed upon those splendid pans of *Lycopods*, comprehending so many kinds, exhibited at the recent great International Horticultural Exhibition, could fail to be struck with the thought that, beautiful as they were, full of luxuriance, and a credit to their growers, yet there was such a sameness, such a lack of varied colouring about them, that one good look sufficed to take in all their charms, and the gazer speedily passed on in search of something more varied and pleasing.

Now, Mosses may be grown in a variety of ways, whether in small pans or pots, to stand in front of or amidst flowering or ornamental-foliaged plants, where they have a very pleasing and effective appearance. It is, however, generally understood that to grow Mosses well, and especially for exhibition, they must be in as large pans as possible, forming dense masses from 18 to 30 inches in breadth, and almost invariably offering a flat surface, devoid of flowers or coloured foliage to give relief, and they thus present anything but that varied aspect upon which the eye delights to rest.

Having this season grown a few rather larger pans than usual of such as *Selaginella denticulata*, *Martensii*, *formosa*, and a few others, and being struck

with the idea that a little variation would be worth attempting, I proceeded to scoop out the centre of each pan, giving space enough to admit a 32-sized pot. Thus, into the centre of the pan of *S. denticulata* I placed a nice plant of *Alma* variegated *Geranium*, the Moss just covering the pot; into that containing *S. Martensii* I introduced a plant of *Lobelia Paxtoniana* in full bloom; into that filled with *S. formosa* a small plant of *Celosia coccinea pyramidalis*; and into another *Coleus Verschaffeltii*. Besides these there are pans in which are introduced *Thunbergia aurantiaca*, *Torenia asiatica*, Mrs. Pollock *Geranium*, and a few other plants. The pans thus treated present a remarkably pleasing appearance, indeed all who have seen them have been struck with the idea; and I feel sure that if any fellow gardeners should be disposed to give the plan a trial they will be amply repaid both by its novelty and effect.

Maybush.

A. D.

CANNAS.

IN describing in a recent Number of the "*Revue Horticole*," a fine new *Canna* called *Député Hénon* having glaucous sea-green leaves, and very large chrome-yellow and purplish red flowers, M. André remarks that the modifications of the genus will, he believes, be always restricted within certain limits, and that those which have been already obtained seem pretty well to indicate that there is a certain point beyond which further variation cannot be expected. If the genus consisted of numerous, distinct, well-marked species, which could be crossed with each other, considerable deviations might doubtless be obtained in certain directions determined on beforehand; but notwithstanding all that has been written to the contrary, he does not believe in most of the so-called species of *Canna*, and he states that he has formed this opinion from six years' observation and experiment. "Like many others," he says, "I at one time believed in the distinctness of a good number of species, and I undertook to clear up the synonymy and publish a monograph of the genus; but after having laboured several years, experimented on the finest collection which has ever been brought together, and consulted numerous authors, I abandoned the project, and I have come to the conclusion that of the sixty or eighty species described as distinct, not more than five are really so. These are *Canna indica*, *glaucæ*, *flaccida*, *iridiflora*, and *liliiflora*. The first two, however, have so intermingled with each other that it cannot be affirmed that they do not belong to a common type." Hence M. André concludes that the hope of obtaining Cannas with large flowers, in spikes like those of a *Gladiolus*, will never be realised; that though varieties improved in every respect may, and doubtless will be obtained, the modifications which they will present will not go far beyond the present limits.

PENTAS CARNEA ROSEA.

THIS is alike useful and ornamental, but is not grown to that extent to which its merits entitle it. Where cut flowers are much in demand during the dull winter months, half a dozen good plants of this would not fail in giving a supply of this colour of blossom—a colour so much in demand on festive occasions. The only difficulty I find in the cultivation of the *Pentas* is that it is so subject to the mealy bug and brown scale, more especially the former, which is most difficult to eradicate when once fairly established upon the plant; repeated syringings are on the whole the most effectual cure.

The *Pentas* strikes freely almost at any time, but spring striking is probably

the most suitable, just for this reason, that we have all the summer before us to prepare the plants for winter blooming, when they are required for such a purpose. Let us take March as a suitable month to strike the cuttings in. Select small shoots of half-ripened wood, say four joints long, these strike freely in silver sand in a hotbed; in a short time, when rooted, they may be potted off in small-sized pots, according to the strength of cuttings, in good fibrous loam and well-rotted leaf mould, in equal parts, with a liberal addition of silver sand or peat, such as our specimen-plant-growers employ; either of these composts will suit the plant all through its future shiftings. After the first potting, in the course of ten days they will show signs that root-action has commenced. At this stage pinch out the points of the newly potted cuttings. This operation will cause the plants to break laterally. When these lateral shoots are of sufficient strength they may either be pegged down or tied with bast, being careful not to split the young shoots, as they are liable to be thus injured in consequence of being so brittle. As the plant advances in growth, keep shifting on till large enough—they may be grown to an immense size if required—at the same time practising pinching with finger and thumb, as the Pentas has such a tendency to produce flower at every third or fourth joint.

A warm stove, with plenty of light and moisture, is most suitable, and only in such a medium can clean healthy-grown plants be produced. Too bright sun will brown the foliage, and by so doing slightly disfigure the plants; hence the necessity of slight shading during excessively bright weather. A dozen good plants of this Pentas, in different stages, would furnish cut blooms nearly every day in the year. If old plants are grown on from year to year, they must be partially cut down, but not too closely, all the soil shaken away from the roots, and repotted; but old plants soon look shabby.

JOHN EDLINGTON (in *Scottish Gardener*).

IVERY'S NONSUCH LETTUCE.

I AM growing the above Lettuce this season, and am vastly pleased with it. It attains a good size, grows rapidly, hearts well, and there is no symptom of its going to seed. It eats crisp and sweet, with an absence of that peculiar bitter taste characteristic of some Lettuces. In character, too, it is very distinct. I hold it to be one of the best summer Cos Lettuces in cultivation for table use, as well as a capital variety for the exhibition table. Is any one of the readers of the *FLORIST AND POMOLOGIST* growing the Holme Park Cos Lettuce, sent out by Messrs. Stuart & Mein, of Kelso? if so, some account of it will be very acceptable. Reference is seldom made to vegetables in the pages of the *FLORIST AND POMOLOGIST*, though why this should be so I cannot conceive. What can Mr. Tillery, of Welbeck, tell us, or Mr. Cox, of Redleaf, or Mr. Saul, of Stourton? They, at least, can write about vegetables.

E. W.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

July 3rd.—At this meeting Messrs. Veitch & Sons exhibited Nierembergia species, from Tucuman, said to be hardy and of a trailing habit, something like *Phlox verna*; the flowers were of a soft lilac, somewhat resembling those of *N. filicaulis*. The same firm had *Alocasia gigantea*, a magnificent plant; various other fine-foliaged plants, and cut blooms of *Dipladenia amabilis*, the flowers being larger and far richer in colour than *D. crassinoda*, whilst the foliage and growth partake somewhat of the character of those of *D. splendens*.

To this and the *Nierembergia*, among others, first-class certificates were awarded. A fine specimen of *D. amabilis* came from Messrs. Backhouse, of York, having numerous rich rosy crimson flowers, round, bright, and of great substance. First-class certificates were awarded to Mr. J. Watson, of St. Albans, for *Pelargoniums* Mrs. Dix, with scarlet flowers; and Miss Watson, rosy salmon, both belonging to the golden three-coloured-leaved section. The same award was made to Mr. Bartleman, for a Scarlet Nosegay *Pelargonium* named King of Nosegays, having fine trusses of flowers standing well up above the foliage, on which there is a slight dark zone. Mr. William Paul also contributed a batch of his seedlings, among which, Nimrod, a very pleasing and somewhat novel shade of orange scarlet, was awarded a first-class certificate. Mr. Paul also had St. George, one of the Nosegay section, colour vivid crimson scarlet; Scarlet Dwarf, rosy scarlet, the upper half of the flowers being suffused with orange, habit dwarf and close, trusses medium size; Wood Nymph, rosy cerise, flowers large and stout, good close habit, and large trusses; and Cardinal, brilliant scarlet, a fine shade of colour, trusses large and showy.

At the meeting of the Fruit Committee, a certificate of merit was awarded to a fine-looking Strawberry named Dr. Hogg. It belongs to the British Queen class, but, unlike the British Queen, it colours all over, and it is said to be very hardy and a great bearer. A variety named Denbigh Seedling came from Mr. Oldham, of Wrexham. Its fruit was large and coarse, and on being tasted proved too acid to merit recommendation. Some sorts came from the Society's garden, among which were Vicomtesse Hericart de Thury, a variety that is extremely hardy, of good flavour, and unsurpassed as a cropper; La Constante, a sort well suited for edgings, as it produces few or no runners; and Reeves's Eclipse, a kind more valuable for forcing than for out-door cultivation, as, grown in-doors, it has a rich Pine flavour, but in the open air it is not so good. Another sort was also sent by Mr. Oldham, named Sir Watkin, a conical-shaped dark fruit, a cross between Sir Harry and Black Prince, but it did not earn the approval of the Committee.

Referring again to the new Strawberry Dr. Hogg, it may be said that it was raised by Mr. Bradley, the gardener at Elton Manor, who was also the raiser of Oscar, Sir J. Paxton, and other varieties. It is hardier and a better bearer than British Queen. The Rev. Mr. Radclyffe says of it—"This is *Al* in every respect. It is in constitution a Queen, more regularly coloured. It is hardy, fine-foliaged, a good cropper, large, and Queen-flavoured." What better character could be given by such an excellent judge of the fruit as this genial Dorsetshire rector?

July 17th.—Messrs. Veitch & Son exhibited on this occasion another *Nierembergia*, named *rivularis*, very dwarf-growing, with large pure white flowers, having a yellow centre. It is a variety new to gardens, but was figured long ago by Miers in his *Illustrations of South American Plants*. It is low-growing and free-flowering, and at every node are glandular spots, which have the peculiar property of emitting roots, by means of which the plant spreads out into large patches, and may in this way be increased indefinitely. It was stated at this meeting that the *Nierembergia* shown at the previous meeting by Messrs. Veitch had been found to be quite new, and that it had been named in compliment to the exhibitor, N. Veitchii. The same firm had two handsome hybrid *Rhododendrons*, Princess Royal, with rosy pink blossoms; and Princess Alexandra, with pretty flesh-coloured flowers; and some very handsome stove and greenhouse plants. Mr. George Macintosh, of Hammer-smith, had *Pelargonium* Lady Palmerston, with rosy pink flowers; and some plants of *Pyrethrum parthenium flore pleno compactum*, very dwarf and bushy, and remarkably free-blooming. From Messrs. E. G. Henderson & Son came

blooming plants of *Desfontainea spinosa*, which had been flowered out of doors ; a double scarlet *Pelargonium* named *Gloire de Nancy* ; the tricolor-leaved *Lady Cullum*, and others. Mr. John Mann, of Brentwood, had seedling *Zonale Pelargoniums* ; and Mr. W. Paul, seedling plants of his *Nosegay* strain. Some fine and richly-coloured blooms of *Mutisia decurrens* were shown by Messrs. Veitch & Sons, but which were flowered by Mr. Pilcher, gardener to S. Rucker, Esq., of Wandsworth. I believe they were produced out of doors, and it would be interesting to know both the method of culture and how the plant looks in regard to healthiness of the foliage. I have seen one or two specimens out of doors in a sheltered position, but they were "measly-looking" things as the gardeners say, and flowered only at the tips of some lanky and rusty-looking shoots. Mr. C. J. Perry brought with him from Birmingham some excellent trusses of cut *Verbenas*, both seedlings and named varieties. Among the latter were *William Dean*, very fine indeed, the rich purple of this flower is very striking ; *Glowworm*, *Startler*, *Champion*, very rich colour, pips large and very fine ; *Sylph*, *Mauve Queen*, *Rose Imperial*, *Cato*, *Mrs. Dean*, *Magnificans*, *Lord Leigh*, *Princess of Wales*, *Black Prince*, *Snowball*, *Leah*, *Cleopatra*, a splendid flower, colour rich and very striking ; *Charles Perry*, very fine ; *Pioneer*, *Ruby King*, *Fairy*, *Modesty*, and *Pink Queen*. To show what Mr. Perry is doing as a raiser of *Verbenas*, it may be stated that out of twenty-four varieties shown by Mr. Perry on this occasion, eighteen of them were his own seedlings, exclusive of the following, shown for the first time :—*Harry Law*, deep rosy cerise with dark centre and large lemon eye, pips stout and of full size ; a good exhibition variety—awarded a second-class certificate. *Purpurea*, crimson, suffused with purple, deep crimson centre, white eye ; a good and striking colour. *Brunette*, bright crimson with dark centre and bright lemon eye ; pips medium size, colour rich and telling. *Auricula*, purplish crimson, changing to purple with age, lemon eye enlarging and turning to white with age. *The Friar*, rosy pink with crimson centre, pips large and of great breadth and substance, the edges somewhat serrated. *Gem*, intense bright scarlet with white eye, medium pips ; a fine exhibition flower. A special certificate was awarded to Mr. Perry for the collection. Seven of the foregoing flowers were sent out by Mr. Turner in the spring of the year—viz., *Fairy*, pale pink with rosy centre and edges ; novel and fine, *Cleopatra*, *Charles Perry*, *Mrs. Dean*, *W. Dean*, *Champion*, and *Magnificans*.

R. D.

NOTE ON THE CULTIVATION OF *AMHERSTIA NOBILIS*.

[THE following note on the cultivation of *Amherstia nobilis* appears in the last Number of the "Journal of the Royal Horticultural Society," the writer being Mr. Taplin, gardener to His Grace the Duke of Devonshire, at Chatsworth, by whom were exhibited the blooms referred to at page 85.]

The age of the plant is probably about twenty-five years ; the height 5 feet, the circumference 45 feet. It is planted out in a house specially built for it, in a bed of soil about 6 feet square and 3 feet deep, raised above the level of the surrounding path. The soil is warmed to a temperature of about 85° by pipes underneath.

The soil is good open loam and sand, to allow free passage for water, of which it requires a large quantity during the growing season, both on the surface and also poured down a perpendicular opening to the heating pipes below, so as to give moisture with bottom heat. There is sufficient piping to keep the top heat at 70° even in severe weather. The following is the mode of treatment.

When the plant has flowered, a portion of the old soil is removed from the surface without disturbing the roots, and some nice fresh soil added. It will soon commence growing, when it must be kept shaded from the bright sun; for the young growth especially is very impatient of the sun's rays. I keep the plant sprinkled twice each day, and evaporating-pans constantly full of water. The plant generally makes two growths in the summer. The growing temperature is 75° at night, and from 85° to 100° by day.

In the autumn, when the wood begins to ripen, I give less shade, and reduce the supply of water for about three months, but do not allow it to be very dry, and keep some of the evaporating-troughs full of water during the winter.

Winter temperature 70° to 75° . In January I give more water, and the plant will begin to show flower by the end of the month, the flowers pushing out very rapidly and continuing to open for five or six weeks.

There have been this year fifty-five racemes of bloom open, and there are three more to open, in all fifty-eight, with from ten to sixteen flowers on each raceme. The greatest number of racemes with flowers open at one time was about twenty.

WINTER-FLOWERING PLANTS.

PERHAPS there are few branches of gardening which give more pleasure to proprietors than a fine display of flowers in winter. All kinds and sizes are admired at that time, from the humble Snowdrop to the majestic Camellia. Though there are a number of stove and greenhouse plants which can be had gay in the dull months, yet there are many common things very easily forced, which will hold their own among the finest exotics we have, especially where a gay conservatory is kept up, or cut flowers required in quantity. An old favourite for this purpose is the *Deutzia gracilis*; though this plant is so generally grown; yet it seldom receives the attention it deserves, even by those who grow it largely for sale. We have for several years bought a number for early forcing, our own stock being prepared for later work; but as well-ripened plants are difficult to procure, we now prepare a few dozens for early work. Three years ago, when I commenced to get up a stock of these plants, several hundreds of young cuttings were put in, as one would Verbenas, and they rooted in nearly as short a time. They were then potted off singly into small pots, using loam, peat, and a little sand to begin with. The young plants were kept in heat, where they grew rapidly. A mild bed of leaves, with a frame placed over it, is most suitable for this purpose, though we often use the floor of a Peach-house, or similar structure. About midsummer a shift was given, and the plants were still kept growing freely, exposing them to air in proportion as they became near the size required. About the middle of July the plants were hardened, and gradually exposed to the full action of the weather, and afterwards plunged in coal ashes, fully exposed to the south. The young wood soon became hard, and ripened in good time. About the end of October the best of the plants were selected for early forcing, and taken under protection along with large *Deutzias*, and many other things prepared in the same way. The remainder of the small *Deutzias* were turned out into a space prepared for them in the reserve ground, to do as they might till they were required. It is a good system to have a number of all kinds of forcing plants kept in reserve, with the view of having something to fall back upon in case of misfortune.

The old *Deutzias*, after they have done their work for a season, are cut down close to the surfaces of their pots, and allowed to break. If rather late in the season they are helped with a little moist heat. They are then taken out of their pots, and a quantity of the soil taken off the roots. The plants are

then repotted with light soil (sandy loam and leaf mould), and grown on in heat till they are from 2 to 3 feet high, and nearly as much through. The sizes of pots are kept about the same, except when the roots of any of the plants may have been injured, then small pots and more sand in the soil are used. If any become very pot-bound they receive a larger-sized pot after they have broken and shown flower, which keeps them safe from drought at the roots, as a number of plants of different sizes have to be into flower by Christmas. The most promising are selected, placed in a gentle heat about the middle of November, and are kept moving slowly till signs of flower appear; and then more heat and moisture are applied till the buds begin to open. Then more air is given, and less moisture. In a short time afterwards they are ready for decoration or for cut flowers; and as one lot is taken out, as many more are placed in their quarters—thus keeping up a supply till they come in of their own accord.

When Deutzias are to be forced, like all other hardy plants they require to be protected from frost and heavy rain; and if a greenhouse temperature can be maintained for some time previous to the application of stronger heat they will flower freely and more regularly. We commence with a temperature of 45°, and increase it to 55° in process of forcing, and always taking full advantage of sun heat, shutting up early with moisture. The finest Deutzia I ever saw was had from the late Milne & Co.'s Nursery, Vauxhall. The plant appeared to be grown to the size required, and then pinched all over; fresh shoots would be emitted, and each top, when in flower, formed a small bouquet. These plants were always as much across as they were high, and no stakes were ever used to deform them. When these beautiful little plants are tied round trellises or stakes they are robbed of their beauty; they should be compact and hanging over the rims of the pot. When used for cut flowers the blooms should be taken before the blooms expand, as they do not last long after they are fully out; our last lot are now over for the season, and the earliest for next are nearly full grown.

A good companion to the Deutzia is the *Prunus flore pleno*. This little double Plum, if treated the same as the Deutzia (except turning out of pots in the reserve ground when wanted for flowering early, which does not suit it), makes a useful plant.

M.—(*Scottish Gardener.*)

OUR CONTEMPORARIES.

THE BOTANICAL MAGAZINE for July contains plates of the following plants:—

Meconopsis nepalensis.—A noble Papaveraceous plant, originally discovered by Dr. Wallich in the mountains of Nepal, and more recently by Dr. Hooker in the central dampest regions of the Sikkim Himalaya, where it grows abundantly at elevations of 10,000 to 11,000 feet above the level of the sea, and often ornaments the rank herbage that skirts the Pine forest. It is described as being a tall, robust, simple, or sparingly-branched herb, from 3 to 5 feet high, biennial (?), having stems often from 1 to 2 inches in diameter at the base, and erect racemes of pale golden or sulphur yellow flowers 2 or 3 inches in diameter. "A more stately and beautiful plant," says Dr. Hooker, "can hardly be imagined, except the Hollyhock, which it somewhat resembles in miniature."

Polystachya pubescens.—A South African Orchid, which is doubtless identical with the *Epiphora pubescens* of Lindley, who separated the genus *Epiphora* from *Polystachya*; but the two are now re-united. *P. pubescens* is con-

sidered to be the prettiest species of the unattractive genus to which it belongs. It grows less than a foot high, has fusiform pseudo-bulbs an inch or more in length, each producing two or three oblong-lanceolate leaves from 3 to 5 inches in length. The flowers are borne in erect spikes twice the length of the leaves, and are of a golden yellow, but streaked with red lines along the centre of the sepals.

Lobelia nicotianæfolia.—A native of the Neilgherry and other mountains of the Indian Peninsula and Ceylon. Seeds of it were sent to Kew by the late Mr. Allan Black, and it there flowered in a temperate-house in January last, attracting much attention by its striking habit and inflorescence. At Kew it attained 6 feet in height; but in its native country it is said to grow 10 and even 12 feet high. The leaves are narrow-lanceolate, 1 to 2 feet long, and the flowers, which are an inch across, are produced in dense racemes a foot or more in length, forming pyramidal summits of a pale lilac colour.

Ancylogyne longifolia.—"A most beautiful plant, with something of the inflorescence of *Russelia juncea*, introduced by Messrs. Veitch & Sons from Guayaquil, where it was discovered by Mr. Pearce. It is undoubtedly one of the finest tropical Acanthaceæ ever introduced into this country, and cannot fail to be a most important accession to our stoves." It is a glabrous, apparently suffruticose plant, with four-angled stems, ovate-oblong leaves from 4 to 10 inches in length, and drooping, elongated, branched panicles of bright purple flowers about 2 inches in length, and having conspicuous yellow anthers.

Angræcum Chailluanum.—Sent from the Gaboon country by M. Du Chaillu. It has stout stems from 4 to 6 inches long, broad leathery leaves, and greenish white flowers, of which the petals, sepals, and lip resemble each other, being narrow and about $1\frac{1}{2}$ inch in length. The spur is long, flexuose, and of a yellowish green colour.

The FLORAL MAGAZINE for May and June contains the following plates:—

Tacsonia Van-Volxemii.—Figured in our present Number.

Rose Black Prince.—A large, deep, globular flower, scarlet shaded with black, and which has been described as a very dark Gloire de Santenay. It received a first-class certificate from the Royal Horticultural Society's Floral Committee in March last, when it was exhibited by Mr. William Paul, of Waltham Cross.

Rhododendron Denisonii.—A free-flowering hybrid *Rhododendron* raised by Mr. Bousie, late of Stoke Park, Slough, and in colour white, with a lemon blotch, and spotted with the same colour at the base of the petals. It requires a greenhouse temperature.

Hyacinth Sir Henry Havelock.—A splendid new variety exhibited by Mr. William Paul, in March last, and noticed in these pages at the time. "The colour of the flower," says the Editor, "is entirely new, nearer to Haydn than to any other variety, but of a darker and more intense colour, and possessed of a brilliancy, the absence of which in Haydn is its greatest fault. In one stage of the flower the colour, which it is alike difficult to paint or to describe, is that of a ripe Orleans Plum. The spike of the flower is long and massive. The flowers individually are of good average size and form,—certainly in advance of others in that class."

Tropæolums Beauty and Attraction.—The former is a large flower of a delicate sulphur colour, with a maroon crimson blotch towards the base of each petal; and the latter orange, with scarlet blotches. Both were exhibited by Mr. Williams, of the Fortis Green Nursery, Hornsey, at a meeting of the Floral Committee in April last.

Odontoglossum Cervantesii.—A pretty Mexican Orchid with pinkish white flowers, barred in concentric circles with crimson, the labellum, however, being white. It was introduced about twenty years ago.

Camellia Nonpareil.—A medium-sized flower of a delicate flesh colour, barred and striped with deep pink.

Kerria japonica variegata.—A variegated form of the single *Kerria japonica*, better known as the Corchorus. Judging from the plants exhibited at one of the spring shows by Mr. Turner, of Slough, it will prove a useful addition to hardy variegated shrubs.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY. — The last of the special shows for the season, the Rose Show, with which is incorporated the National Rose Show, was held in the conservatory and adjoining corridors on Thursday, June 28th. Although the hot weather which prevailed for some days previous to the Show, and on the day itself, was sadly against the quality of the blooms, those in several of the stands left nothing to be desired as regards their excellence; and the competitors being numerous the display on the whole was very good, and afforded much gratification to a large and fashionable company. Subjoined is a report abridged from the "Journal of Horticulture" of the subjects exhibited in the different classes, and the awards in each.

The Class for eighteen new Roses of 1864 and 1865 brought five competitors:—Messrs. Paul & Son, Fraser, Cant, Francis, and Keynes. In Messrs. Paul & Son's collection were *Alpaïde de Rotalier*, in good condition; *Centifolia rosea*, too thin; *Rushton Radclyffe*, fine, but colour a little gone; *Alfred Colomb*, magnificent flower, one of the best, but here again the colour was a little faded by the heat; *Duke of Wellington*, very bright scarlet, good shape, and excellent; *Maréchal Niel*, very good; *Madame Victor Verdier*, very fine; *Madame Fillion*, a beautiful flesh-coloured flower; *Madame Charles Verdier*, too flat; *Princess Mary of Cambridge*, good; *Belle Normande*, too washy in colour; *Eugène Verdier*, dark, inclined to show the eye. In Mr. Fraser's stand were *Marguerite Dombrain*, a fine full Rose; *Maréchal Souchet*, good; *King's Acre*, too coarse; *Prince de Porcia*, very bright and good; *Pline*, rough and thin; *Gabriel de Peyronny*, somewhat rough; *Alfred Colomb*, very fine. In Mr. Cant's stand were *Joséphine Beauharnais*, a fine light-coloured flower; *Marguerite Dombrain*, good, and somewhat similar to the preceding; *Duke of Wellington*, very good; *Charles Rouillard*, very fine; and *Maréchal Niel*. Mr. Keynes's collection contained large flowers, but wanting a little in refinement. There was a fine bloom of *Xavier*

Olibo, which has, however, an awkward way of twisting itself about, and not opening freely; *Général Jacqueminot* does the same, but *Xavier Olibo* being stiffer in petal than the *Général*, this cause prevents it from opening at all sometimes, otherwise it would be a magnificent dark flower. Mr. Francis had amongst others *Xavier Olibo*, *Souvenir de William Wood*, &c.

In the Class for twelve trusses of any new kind Messrs. Paul & Son had a stand of *Marguerite de St. Amand*, a splendid Rose, of a bright flesh colour, and a decided acquisition. Mr. Keynes had *Madame Moreau*, very large and bright, but too saucer-like to suit my taste, especially for showing in this way. It will take a good place as a back-row flower, but it is not the style we want. *Pierre Notting* from Paul & Son was good, but it had a tendency to show the eye, which detracted from its merits. Mr. Cant had *Marguerite de St. Amand*, very good.

Awards—For eighteen new Roses of 1864 and 1865: first, Messrs. Paul & Son; second, Mr. Fraser; third, Mr. Keynes; fourth, Mr. Cant. For twelve of 1864: first, withheld; second, Messrs. Paul & Son. For twelve trusses of any other new kind: first, Mr. Cant; second, Mr. Keynes; third, Messrs. Paul & Son.

The stands for decoration were decidedly pretty, and most of them in good taste. Mr. Soder, gardener to Osgood Hanbury, Esq., Brentwood, had an oval stand with Fern leaves; springing from it was an oval frame with a glass vase at the base, and surmounted with another glass vase, all containing nice blooms of Roses. Miss Wint, of Brighton, had a stand composed of five tapering glasses, the centre one being tall, and glass stems coming from it to each of the smaller ones. Mr. Hedge had a very pretty stand with some fine flowers, and a beautiful Moss Rose bud on the top. Another stand, one of Mr. March's pattern, was very handsomely set up with abundance of Maiden-hair Fern interspersed through it. It will thus be seen there is a little deviation from Mr. March's original pattern, although there is hardly one,

even now, prettier than it, especially when tastefully set up.

Awards—For decorated baskets or vases of Roses: first, Mr. Marlow, gardener to J. Wigan, Esq.; second, Mr. Hedge; third, Mr. Soder. For bouquets: first, Mr. Chard; second, Messrs. Francis; third, Mr. Hedge.

In Class I., single trusses of seventy-two kinds, Messrs. Paul & Son, and Mr. Cant, of Colchester, had each very fine exhibitions. From the former came fine blooms of Xavier Olibo, Madame Boutin, Olivier Delhomme, Maréchal Niel, Gloire de Dijon, Devoniensis, Madame Vidot, Mrs. William Paul, fine violet crimson with a fiery centre; John Hopper, Comtesse de Chabillant, Beauty of Waltham, Princess Mary of Cambridge, Madame Boll, Alba rosea, Baron Adolphe de Rothschild, Louise Magnan, Souvenir d'Elise, very large and beautiful; Rushton Radclyffe, Centifolia rosea, Louise de Savoie, Prince de Porcia, fine scarlet; Comte de Nanteuil, Lælia, Baron Gonella, and Louise de Savoie.

Mr. Cant had Marie Baumann, very large, rosy crimson; Madame Charles Wood, a fine crimson; Duc de Rohan, Xavier Olibo, Comtesse de Chabillant, Madame Victor Verdier, Devoniensis, Niphotos, Marguerite de St. Amand, Victor Verdier, fine; and with few exceptions the whole of his blooms were remarkable for size. It may also be remarked that in these and some other stands the trusses were set up with buds.

Mr. Keynes had fine blooms of Madame Sertot, white; François Lacharme, John Hopper, Pierre Notting, Triomphe de Rennes, Gloire de Dijon, Mdlle. Bonnaire, very prettily tinged with rose in the centre; Moiret, Duchesse de Caylus, and Maréchal Niel.

Awards—Equal first, Messrs. Paul & Son, and Mr. Cant; second, Mr. Keynes; third, Messrs. Francis.

In Class II., forty-eight kinds, three trusses, there was a very fine display, particularly in the stands of Mr. Turner, of Slough, and Mr. Keynes. The varieties seen to best advantage were Olivier Delhomme; Virginal, beautiful in colour; Coupe d'Hébé, Mrs. Rivers, John Hopper, Gloire de Dijon, Souvenir d'un Ami, Charles Lefebvre, Xavier Olibo, Le Rhone, rich crimson scarlet; François Lacharme, Baron Gonella, Marguerite de St. Amand, Eugène Verdier, dark violet purple; Beauty of Waltham, Joseph Fiala, violet shaded crimson scarlet; Duchesse de Caylus, bright rosy crimson, and very full; Denis Helye, Alba rosea, Madame Victor Verdier, Comtesse de Chabillant, Dr. Andry, Madame Boll, Prince of Wales, rosy crimson; Maurice Bernardin, La Brillante, Madame Vidot, General Castillane, Laurent Descourt, purplish scarlet, brighter in the centre, and many others which it would be tedious to enumerate.

Awards—First, Mr. Turner; second, Mr. Keynes; third, Messrs. Francis; fourth, Messrs. Paul & Son.

Class III., was for twenty-four kinds, three trusses. Here Mr. Cant took the lead with, among others, remarkably fine trusses of La Brillante, very bright in colour; John Hopper, François Lacharme, Marie Baumann, very large and full; Prince Camille de Rohan, Mdlle. Bonnaire, and Madame Charles Wood. Messrs. Paul & Son, who were second, had Princess Mary of Cambridge, La Ville de St. Denis, and Queen Victoria, large, white, shaded with delicate rose. Mr. Turner, fine trusses of Maurice Bernardin, Sénateur Vaisse, Jules Margottin, Comtesse de Chabillant, La Reine, Madame Knorr, Marguerite de St. Amand, and La Tour de Crouy, very large; and Mr. Keynes, Madame Charles Wood, Duc de Rohan, pretty buds of Madame Furtado, Victor Verdier, Madame Clemence Joigneaux, lilac rose; and Le Baron de Rothschild, deep crimson scarlet. Alfred Colomb, bright rosy red, came from Messrs. J. & C. Lee.

Awards—First, Mr. Cant; second, Messrs. Paul & Son; third, Mr. Turner; fourth, Mr. Keynes. Commended, Messrs. Francis.

In Class IV., single trusses of twenty-four kinds, Mr. Turner had a fine bud of Devoniensis, Duchesse de Caylus, very fine; Madame Joséphine Guyet, Madame Victor Verdier, Madame Furtado, Gloire de Dijon, Devoniensis, Jules Margottin, and La Reine; and in other stands were fine examples of several of the above, Sénateur Vaisse, William Griffiths, Maréchal Niel, Madame Charles Wood, Charles Lefebvre, Victor Verdier, Le Rhone, Marguerite de St. Amand, Rubens, Lælia, Marie Baumann, and Alphonse Damaizin.

Awards—First, Mr. Turner; second, Mr. Cant; third, Messrs. Paul & Son; fourth, Mr. Keynes.

In the Amateurs' classes, all for single trusses, there were many excellent stands, and but few that could not be considered fair.

In Class V., forty-eight kinds, Mr. Hedge, Reed Hall, Colchester, took the first honours with a set in which we remarked fine blooms of Madame Charles Wood, a fine bud of La Boule d'Or, François Lacharme, Pierre Notting, Marie Baumann, Madame Villermoz, Souvenir d'Elise Vardon, William Griffiths, La Ville de St. Denis, Mathurin Regnier, and Anna de Diesbach. He had also a fine truss of Cloth of Gold, a variety which this year seems to be unusually fine, consisting of five blooms. Mr. Ingle, gardener to C. G. Round, Esq., Colchester, had Eugène Desgaches, cream, tinged with rose; Mrs. Rivers, Souvenir d'Elise, Devoniensis, George Paul, Lord Macaulay, very dark crimson; Madame Victor Verdier, Caroline de Sansal, and Maurice Bernardin. From Mr. Moffat, gardener to the Hon. Mrs. Maynard, Easton Lodge, Dunmow, came Empereur de Maroc, Devoniensis, Beauty of Waltham, Gloire de Dijon, Madame Boll, and Impératrice Eugénie, small, white, tinged with blush. In the stands of other exhibitors

in the same class we noticed Joseph Fiala, Spotted Queen, carnation-striped; Gloire de Santenay, L'Enfant Trouvé, and Juno.

Awards—First, Mr. Hedge; equal second, Mr. Moffat and Mr. Ingle; third, J. Hollingworth, Esq.; fourth, Mr. Chard.

Class VI. was for thirty-six kinds. Here we noted Madame Bravy, Prince Léon, Madame Masson, violet, to which colour it changes from crimson; Mrs. Rivers, and Beauty of Waltham from Mr. Ingle; and from Mr. Hedge and others, Souvenir d'Elise Vardon, some 5 or 6 inches across; Cloth of Gold, Louise Magnan, Oriflamme de St. Louis, bright crimson; Anna de Diesbach, Charles Lawson, and Général Jacqueminot. André Leroy, a fine-coloured flower, was shown by Mr. Wright, gardener to Mrs. Ramsden.

Awards—First, Mr. Ingle; second, Mr. Hedge; equal third, Mr. Chard and Mr. Marcham; fourth, Dr. Cooper.

In Class VII., twenty-four kinds, the best exhibition was that of Mr. R. B. Postans, of Brentwood, who had fine blooms of Triomphe de Caen, violet crimson, with a scarlet centre; François Lacharme, Charles Lefebvre, John Hopper, L'Esmeralda, Prince Camille de Rohan, Empereur de Maroc, Olivier Delhomme, and Madame Boll. Mr. May, gardener to C. Worthington, Esq., Caversham Priory, also exhibited Prince Camille de Rohan, Lord Macaulay, and others, in very good condition: and Mr. Dennis, Folkington, Madame Maurin, and Bougère Tea Roses, the one white, the other fawn. There were several other good exhibitions in the same class.

Awards—First, R. B. Postans, Esq.; equal second, Mr. May and Mr. Dennis; equal third, Mr. Plester and the Rev. Canon Fisher; fourth, Rev. V. Knox Child.

In Class VII., twelve kinds, the following were in fine condition—viz., Gloire de Dijon, John Hopper, Marie Baumann, Charles Lefebvre, Cloth of Gold, Madame Bravy, Sénateur Vaisse, Auguste Mié, and Mdle. Emain, a pretty white Perpetual.

Awards—First, Rev. V. Knox Child; second, R. B. Postans, Esq.; third, Mr. Dennis; fourth, Mr. Plester.

Class XII. was for the best twelve trusses of yellow Roses, consisting of not less than six kinds; and the only exhibitor was Mr. Hedge, to whom was awarded a first prize for Narcisse, La Boule d'Or, poor; Triomphe de Rennes, Celine Forestier, and L'Enfant Trouvé, a strong sport of Elise Sauvage; and Cloth of Gold.

In Class XIII., for the best collection of yellow Roses, Mr. Hedge was again first with Cloth of Gold, L'Enfant Trouvé, fine; Mélanie Oger, Narcisse, and Smith's Yellow. Messrs. Paul & Son were second with Gloire de Dijon, Vicomtesse de Cazes, Lamarque, Madame Falcot, Madame William, Louise de Savoie, Marquise de Foucault, and Auguste Vacher.

Tea-scented and Noisette Roses, though not sufficiently varied in colour to make an effective display, are always welcome on account of their fragrance. They chiefly consisted of La Boule d'Or, Triomphe de Rennes, Gloire de Dijon, Gloire de Bordeaux, Madame Bravy, Souvenir d'Elise, Joséphine Malton, Eugène Desgaches, Souvenir d'un Ami, some fine examples of L'Enfant Trouvé, Louise de Savoie, Homer, Alba rosea, America, Niphotos, and Celine Forestier.

Awards—For twelve trusses (Amateurs): first, Mr. Ingle; second, Mr. May; third, Mr. Hedge. For twelve trusses (Nurserymen): first, Messrs. Paul & Son; second, Mr. Cant; third, Mr. Keynes. For twelve single blooms: first, Mr. Cant; second, Mr. Hedge; third, Mr. Keynes.

Of Moss Roses only one stand was shown, that being from Messrs. Paul & Son, who were awarded a first prize. It contained Salet, the Crested Moss, Bath White, Comtesse Murinais, and one or two others.

Pot Roses formed a very effective bank, the plants being in profuse bloom, though the flowers were not individually so attractive as earlier in the season. President from Mr. Turner, and Maréchal Niel from Mr. William Paul, were especially fine; and Rushton Radclyffe, Pierre Notting, and other recent varieties, were also well represented.

Awards—For twenty-four: first, Mr. Turner; equal second, Messrs. Paul & Son and Mr. William Paul. For twenty new Roses: first, Messrs. Paul & Son; second, Mr. Wm. Paul.

ROYAL BOTANIC SOCIETY.—The July Show, of which fruit always constitutes an important feature, took place on the 4th; and, notwithstanding that the day was cold, with occasional showers, there was a fair, even a large attendance of visitors. We have used the word "fair" inadvertently, and without intending a play upon words, for, as usual, the fair sex were greatly in the ascendant as regards numbers.

Of Pines nearly a hundred fruit were exhibited, and some of them were magnificent. Queens in several instances were of extraordinary weight, such, indeed, as have rarely been seen at the London shows of late years. Mr. Ward, gardener to F. N. Miller, Esq., of Bishop Stortford, was first with a handsome fruit of 7 lbs. 6 ozs.; the second prize, one from Mr. Brice, gardener to J. Lermite, Esq., Finchley, weighed 5 lbs. 4 ozs.; and that to which the third prize was awarded, and which came from Mr. Young, gardener to Crawshay Bailey, Esq., Aberaman, weighed 5 lbs. Mr. Ward had in addition a dozen Queens averaging 5 lbs. 4 ozs. each, all of which were handsome beautifully-ripened fruit. Mr. Hannan, gardener to R. T. Crawshay, Esq., and Mr. Young, exhibited excellent Providences, the heaviest weighing 10 lbs.;

and good fruit of the same variety, though not remarkable for weight, came from some other exhibitors. Of Grapes upwards of 200 bunches were shown, besides several good baskets. In the class for three kinds, Mr. Meredith was first with Black Hamburgh, equally fine with those which he usually exhibits, Black Prince, and Trentham Black; and in the class for Black Hamburgh he had a first prize for three bunches weighing $10\frac{3}{4}$ lbs., beautifully coloured, and the large even-sized berries densely covered with bloom. An equal first prize was awarded in the same class to Mr. Clement, East Barnet, for very fine bunches; and though these two exhibitors far out-distanced all other competitors, several excellent bunches were exhibited. The only perfectly ripe Muscats were those from Mr. Turner, which had acquired that beautiful amber tinge which is so desirable, and, at the same time, so rarely seen even at the July shows. To secure its thorough ripening the Muscat of Alexandria requires a much higher temperature than it generally receives. Good bunches of Black Prince were shown by Mr. Turnbull, gardener to the Duke of Marlborough, at Blenheim, and Mr. Sage, gardener to Earl Howe; and of West's St. Peter's by Mr. Allport, gardener to H. Ackroyd, Esq. There was a fair show of Melons, and Peaches, and Nectarines were in most instances very fine. The best Strawberries came from Mr. Widdowson, gardener to J. H. Barnes, Esq., Rickmansworth; and of Cherries we noticed fine fruit of the Black Tartarian from Mr. Turner, Slough, and Mr. Hill, gardener to R. Hanbury, Esq., The Poles, Ware.

In the floral department the most noticeable specimen among the stove and greenhouse plants was a worked plant of *Ixora salicifolia*, shown by Mr. Peed, gardener to Mrs. Tredwell, Lower Norwood; it stood about $5\frac{1}{2}$ feet high, and was profusely studded with great heads of orange flowers. A finer specimen *Ixora* we do not remember to have seen. Fine-foliaged plants (including Ferns), Heaths, and Pelargoniums, were well represented; and some very good Roses in pots came from Messrs. Paul & Son. For new plants and seedling florists' flowers numerous certificates were awarded to Messrs. Veitch, Bull, Williams, F. & A. Smith, W. Paul, and Turner—to the last three for Pelargoniums.

BOTANICAL APPOINTMENT.—Mr. W. H. Baxter, Curator of the Oxford Botanic Garden, has been appointed to the curatorship of the University New Park, where, we understand, it is in contemplation to establish an arboretum.

THE REYNOLDS HOLE TESTIMONIAL.—On the evening of the Royal Horticultural and National Rose Show the Rev. S. Reynolds Hole was presented with a handsome silver tea-urn at a dinner held at Anderton's Hotel, Fleet Street. Some months ago the fact was

noticed in these pages that a subscription had been set on foot for the purpose of marking, by a suitable presentation, the obligations which the Rose-growers and Rose-lovers of this country owe to this gentleman for his exertions in originating and maintaining the National Rose Show, and in extending a love for the culture of that flower by his genial writings and example. The Rev. H. H. Dombrain presided.

FRUIT TREE PLANTATIONS ON RAILWAY EMBANKMENTS—Plantations of fruit trees, consisting of Currants, Vines, and even tall-stemmed trees, such as Plums, have been established at various parts along the Orleans line. The plantations, which have been well made and kept up, are established in furrows along the sloping side of the bank. In this way, doubtless, a considerable quantity of fruit could be secured from ground by the sides of our railways at present lying idle, or worse than idle, for such banks are nurseries whence weeds are freely disseminated over the adjoining lands.

DR. HOOKER has had the distinguished honour of being elected a corresponding member of the French Academy of Sciences, having obtained thirty-two out of thirty-seven votes.

At a meeting of the Imperial and Central Horticultural Society of France Messrs. Thibaut and Kételeer, of Paris, exhibited an Orange tree, obtained by grafting the under side of the midrib of a leaf-cutting. The operator was a gardener named M. Auber. The leafstalk rooted, and the graft took, and eventually produced a shoot; but the most singular circumstance of this case was, that of the stem which was eventually produced, one half appears to be formed by the leafstalk and base of the midrib, which have thus become ligneous and persistent, and the other half by the graft. Two ridges on the stem mark the edges of the leafstalk and midrib. At a subsequent meeting M. Verdier directed attention to a mode of avoiding Rose suckers. This simply consists in working dwarf seedling Briars beneath the seed-leaves.

OBITUARY.

MR. WILLIAM COCK, an extensive market gardener at Chiswick, a few years ago well known to the frequenters of the metropolitan flower shows as a highly successful cultivator of the Pelargonium, died at that village on the 1st of July, at the age of sixty-three. For many years his favourite flower was the Pelargonium, and few indeed there were who approached him in the extraordinary size and beauty of the specimens which year after year he was in the habit of exhibiting. The cultivation of these was with him entirely a labour of love—they were in fact the hobby to which he devoted what time he could spare from the superintendence of his highly-culti-

vated fields, surrounded by neatly-kept hedges, and in which it would have been scarcely possible to discover a weed. His neighbour, Mr. Edmonds, pays the following tribute to his memory in *The Gardeners' Chronicle*:—"Mr. Cock was one of the earliest and also one of the most successful contributors to the first shows of the Horticultural Society at Chiswick, the contemporary of Green and Barnes, and others whose names have long been household words amongst exhibitors. His favourite flower was the Pelargonium, and those who remember the exhibitions that were held in the Society's Garden at Chiswick about the year 1835, will not have forgotten the handsome and well-managed specimens which were shown by Mr. Cock. His were invariably the plants that carried off the first prizes, although his friend Mr. Catleugh sometimes ran him hard. He had a correct eye and good taste, and no one in his day knew better than he what constituted a good Pelargonium flower. He was also a most successful cultivator of the Balsam. Some

specimens exhibited by him about the date already mentioned were wonderful examples of high cultivation. Four plants only could be pressed into a large van. Each plant measured 6 feet in height, and as much in diameter, one only having been grown in a light. Of late years Mr. Cock had given up the cultivation of his former favourites, and spent his leisure time in growing Camellias, Epacrises, seedling scarlet Pelargoniums, &c. His habits were of the most retiring kind, and his charity to his poorer neighbours of the most liberal but unostentatious character. He was indeed a true friend to his neighbours, and will be missed by many—by none more than myself."

M. MARIUS PORTE, to whom we owe the introduction into Europe of many valuable plants from the Brazils and Philippine Islands, died at Manilla on the 15th of January last. We learn from a foreign horticultural journal that his last illness resulted from the fatigue which he had endured during a journey in the interior of Luzon.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Stove.—Stove plants are now growing freely. Allow more air, and inure them to more light by reducing the shading; this will help to keep the growth compact, and will assist plants done blooming to ripen their wood. Regulate climbing plants. Attend to potting, &c., plants to flower late in the autumn; these may now be fully exposed, to arrest their growth and induce an early bloom. *Orchids*.—Those kinds which appear to have done growing may be gradually exposed to more light and a drier atmosphere, preparatory to putting them to rest. Keep up a moist atmosphere in the case of plants in full growth, and see that those on blocks, &c., are kept duly moistened, otherwise a cessation of growth will take place too soon. Growth should be encouraged to its utmost limits, if fine strong plants are desired.

GREENHOUSE.

Camellias and Azaleas.—Camellias will by this time be mostly out of doors; attend to their wants with water, and guard against their being blown over by the wind. Azaleas which have formed their buds may be at once set out in a sunny exposure. Protect the pots, however, from being acted on by the midday sun, or injury to the plants, if not death, will be the consequence. *Cinerarias*.—Pot off cuttings as soon as struck into small pots, and repot as soon as the roots have fairly reached the sides of the pots. Cuttings may still be put in for a succession. Seedlings should also be repotted and used in a similar manner; mildew is the principal evil to guard against.

Sulphur the leaves immediately on its appearance. They are easily grown if they receive proper attention at the proper time, and no class of flowers sooner repays the little care bestowed on it than the *Cineraria*, with its lively flowers in early spring. *Pelargoniums*.—Cutting down should not be delayed, or the young stock will be late. Pot off young plants as soon as sufficiently rooted. The strongest of these intended for specimens should be selected and have an extra shift this month, that a considerable growth may be made in the autumn. Seed, as it ripens, should be sown in pans or broad-topped pots, which should be slightly shaded in very bright weather. The first-cut-down plants—those intended for early bloom next spring—will be sufficiently broken to be shaken out of the old soil towards the end of the month, and after being disrooted they should be repotted in fresh soil, in pots a size smaller. Place them in a frame or close house for a time, keeping them near the glass, and closely shading during the day. Dry the plants every morning by giving air, and harden them gradually as the roots reach the pots. Fancies require very similar treatment; the soil, however, should be a little lighter.

CONSERVATORY.

Give air in abundance at every opportunity, to keep the wood from drawing. This is the more necessary from the amount of shade required to render this structure comfortable in hot weather. Keep as few extra plants in the house as possible, in order to give the proper treatment to the permanent stock. Bring forward a supply of Lilioms, Scarlet Pelar-

goniums, Fuchsias, Gladiolus, &c., for the show-house, as well as Balsams and other showy annuals.

FORCING.

If the leaves in the earliest-forced vineries and Peach-houses are turning yellow, the sashes may be removed at once. Continue a dryish heat and good ventilation to Grapes now colouring. The last house should be finally thinned; Muscats, if not ripe, will want fires in wet weather. *Cucumbers*.—Sow for winter, if not already done. *Melons*.—Maintain a steady bottom heat to advancing crops; turn out the last crop. *Pines*.—Fruit for autumn and winter should now be showing. Keep the syringe from the fruit while in bloom. Shift succession plants into their fruiting pots, and plant out. If grown on the open-bed system plenty of air is indispensable at this stage.

KITCHEN GARDEN.

Let the remains of the spring crops be cleared off the ground directly they are over, to make room for additional plantings of Broccolis, &c. Sow Spinach to stand the winter, and plant a breadth of Endive. The usual hoeing and cleaning among growing crops of all kinds must be attended to. Sow a good breadth of Turnips to stand the winter. Cabbage for the first crop should be sown without delay. Cauliflowers to stand the winter in frames and for hand-glasses should be sown from the 18th to the 25th, according to the locality. Sow towards the middle of the month Onions and Lettuces for standing over the winter. Earth up Celery, Leeks, and Cardoons, for the earliest supply.

HARDY FRUIT.

Proceed with cutting back, as advised last month, and nailing in the summer wood. Keep down aphides. The sooner Strawberry plantations are made the greater the chance of a crop next season; rich deep loamy soil, with a good dressing of dung, is the most suitable for them; remove runners from established plants, unless wanted for stock.

FLOWER GARDEN AND SHRUBBERY.

Let everything wanting support be provided in due time with proper stakes, &c. Attend strictly to neatness in the borders, lawns, and gravel walks. *Roses*.—For aphides the usual remedy of syringing with tobacco-water has the desired effect, if applied in time; but where honeydew has covered the leaves, a soft brush and water is the only method of cleansing them, taking care to search the under side of the foliage: help, however, may be expected from ladybirds, whose larvæ, known among hop-planters as "niggers," do great execution among the aphides. Be careful, therefore, not to disturb ladybirds when seen near the plants. Continue to remove decaying blossoms as before directed. Liquid manure should now be freely administered. The doubtful autumnal bloomers, as William

Jesse, Duchess of Sutherland, &c., will be much more certain of flowering late if half of the strong shoots of this year are now reduced to half their length.

FLORISTS' FLOWERS.

Auriculas.—Give the plants a good fumigating, to destroy any green fly that may infest them. Early in this month the general repotting should take place, using well-prepared sweet soil. The pots, if old, should have been well washed; the size must depend on the strength of the plant; three and four inch pots will be suitable for the greater part of them. Use plenty of drainage. Young plants that have not yet flowered, and that are in small pots, will require repotting into a larger size after reducing the ball of earth. Seedlings should be encouraged to grow, by potting the strongest of them singly; the weak plants may be put three into a pot, for a time, until they are large enough to be treated in the same manner. *Carnations and Picotees*.—Proceed with the general layering of these without delay; all should be laid down by the 20th of this month: if a week earlier so much the better. Those in beds should have been layered in the latter part of July, as they do not root so readily as when grown in pots. Transplant pipings into sandy soil as soon as struck, to encourage a good growth before they are potted for wintering. Seed is best secured by placing small glasses immediately over the pod, keeping all wet from it, but allowing plenty of air. *Dahlias*.—Continue regularly to water over the foliage every evening during dry weather, and give a good watering at the roots occasionally, according to the weather. If not already mulched it should be done without further delay, using partly decomposed manure. If the plants are attacked with the black fly, the best remedy is to make them grow as fast as possible, so as to grow out of it. Defer thinning the shoots and disbudding for a time, and these operations should be performed but sparingly at first, leaving a considerable number of buds on the largest varieties. As soon as they are sufficiently long, tie out the side shoots securely to stakes of a smaller size than those used for the centre of the plant. *Pansies*.—Plant out young stock as soon as rooted, and continue to put in cuttings; the surface of the beds containing the plants first struck should be often stirred. If a large increase is required, the tops may be taken off and put in as cuttings. Seed should now be sown, and any plants that are attacked with mildew ought to be sulphured. *Pinks*.—Transplant cuttings from the piping-bed into light sandy soil, choosing a dry day. Pinks do not like being saturated with wet immediately after being planted. The soil should be free from wireworm. The beds after planting out should often be examined for grubs, which are very destructive to young plants.



Primula sinensis filicifolia fl. rubro pleno

F. Waller lith. 18 Hatton Garden

NEW DOUBLE CHINESE PRIMROSES.

WITH AN ILLUSTRATION.

THE double-flowered varieties of the Chinese Primrose form a group of considerable extent, as well as one of great beauty and interest. The old double rose-coloured and double white varieties of former days, showy and attractive as they were, are far surpassed by the modern kinds obtained within the last six or eight years, and of which that represented in our plate, under the erroneous name of *magnifica*, is one of the most novel and most charming.

The first step in advance beyond the original double-flowered varieties of this useful plant was the acquisition of the brighter-coloured fringed-petaled *atro-rosea plena*, which was first shown by Mr. Turner, the larger and more imposing flowers of which are no doubt due to its very robust and vigorous constitution. To this followed two semi-double varieties, named *nivea plena* and *rubella plena*, exhibited by Mr. Bull—varieties which were said to have the property of reproducing similar semi-double forms from their seeds. Since then the progress made in the improvement of the flower has been very rapid, and many fine, full, double sorts of various colours have been obtained.

The chief exhibitors of these later double-flowered varieties have been Messrs. F. & A. Smith, of Dulwich, and Messrs. Windesbank & Kingsbury, of Southampton, the different sorts having, however, as we are given to understand, had their origin in the same establishment—namely, the nursery of the latter-named gentlemen, who, it is said, have succeeded in obtaining a race of Chinese Primroses, among the seedlings of which a considerable per-centage of double flowers generally occurs. We use above the expression, “it is said,” because we ourselves have not succeeded in raising anything beyond single-flowered plants from seeds obtained from this source. The principal novelties which have appeared from these two collections bear the following names:—*Delicata*, *Fairy*, *Rubra grandiflora*, *Purpurea erecta*, *Queen of England*, *Glen-Eyre*, *Kermesina splendens plena*, and *Magnifica*. The varieties alluded to in the previous remarks all belong to the original race, which has the leaves ovate in outline; but some few years since the late Mr. Kay, of Finchley, obtained amongst seedlings of the common sort a sport in which the leaves were much more elongated, so as to acquire an oblong figure, and these leaves being deeply pinnatifid, with toothed lobes, somewhat resembling Fern fronds, obtained for the sport the name of *filicifolia*, or Fern-leaved. This sport, of which both rose-coloured and white-flowered single varieties were at length obtained, was let out by Messrs. E. G. Henderson & Son.

During the past spring the variety we now figure, *PRIMULA SINENSIS FILICIFOLIA RUBRA PLENA* (a long name truly), or the double red Fern-leaved Chinese Primrose, has been produced at one of the meetings at South Kensington by Mr. Toombs, gardener to W. S. Roots, Esq., of Kingston-on-Thames. It is a remarkably compact-growing plant, with full double flowers of a deep rosy tint, paler at the edges, and very justly received a first-class certificate. As the first double-flowered form of the Fern-leaved race, it must be regarded as a most important addition to the already extensive group of Chinese Primroses.

We cannot do better than add here, chiefly from the “Proceedings” of the Royal Horticultural Society, the several paragraphs in which the modern double-flowered varieties alluded to in the above brief sketch have been described:—

“*Primula sinensis atro-rosea plena*.—March 8th, 1860.—From Mr. C. Turner, Slough. This beautiful plant was awarded a first-class certificate of merit. It proved to be a variety of vigorous habit, producing umbels of numerous large double flowers, which were fully

1½ inch in diameter, and of a deep rose colour, fringed on the margins of the segments as in the variety called *fimbriata*, of which this is a double-flowered form, accidentally produced amongst seedlings of the common fringed sort."

"*Primula sinensis* (fimbriata) *nivea plena* and *rubella plena*.—March 26th, 1861.—From Mr. W. Bull, Chelsea. These were two semi-double varieties of the Chinese Primrose, of which it was stated that the plants obtained from seed would yield similar double flowers. The flowers themselves were less double than in some fine varieties already known; but it was thought that the present being more readily increased than the choicer varieties already mentioned, would form a useful decorative object, and a commendation was therefore awarded to both forms."

"*Primula sinensis* (fimbriata flore pleno) *delicata*.—April 1st, 1862.—From Messrs. F. & A. Smith, Dulwich. A very fine double Chinese Primrose, obtainable from seed. It was of vigorous habit, with bold, full, double flowers, measuring nearly a couple of inches across, fringed, white, changing to a delicate blush. In addition to the duplicature of the segments of the corolla, the central organs were converted into small flowers, two or three of which were observed in most of the blossoms, which were, consequently, very full to the centre. This was one of the finest forms of double Chinese Primrose which has yet been produced, fully equal in merit to the variety *atro-rosea*, exhibited at some of the earlier meetings of the Committee. It was awarded a first-class certificate."

"*Primula sinensis* (fimbriata flore pleno), *The Fairy*.—April 9th, 1862.—From Messrs. F. & A. Smith, Dulwich. A dwarf-habited and very double sport of the fine double flesh-coloured Chinese Primrose noticed previously under the name of *delicata*. It was commended."

"*Primula sinensis* (fimbriata flore pleno) *rubra grandiflora*.—April 9th, 1862.—From Messrs. F. & A. Smith. A double, fringed, rose-coloured variety, not so deeply coloured as *atro-rosea*, but withal a very useful and desirable plant if reproducible, like *delicata*, from the seeds."

"*Double Chinese Primroses*.—March 18th, 1863.—From Messrs. F. & A. Smith, Dulwich. Under the names of *delicata* and *rubra grandiflora*, Messrs. Smith last year exhibited two remarkably fine double Chinese Primroses, which were said to have the property of increasing themselves from seeds. A group of seedlings from these plants was now shown, all perfectly double, and reproducing the two colours of the originals. It was awarded a special certificate."

"*Primula sinensis*.—December 8th, 1863.—From Messrs. F. & A. Smith, Dulwich. One variety, called *purpurea erecta*, was a very large double, fringed flower of a purplish rose; another, called *Queen of England*, was a large, double, fringed blush, both quite equal in quality to the double blush and double rose-coloured varieties already awarded first-class certificates, but not thought distinct enough for further reward."

"*Primula sinensis Glen-Eyre*.—March 21st, 1865.—From Messrs. Windebank & Kingsbury, Southampton. A fine double form of Chinese Primrose, of dwarfish habit, with deep purple rose flowers. First-class certificate."

"*Primula sinensis kermesina splendens plena*.—March 21st, 1865.—From Messrs. Windebank & Kingsbury. A beautiful and thoroughly distinct variety of Chinese Primrose, with good double flowers of a shaded carmine rose. This was quite an acquisition. First-class certificate."

"*Chinese Primroses*.—March 20th, 1866.—A fine collection of twenty came from Messrs. Windebank & Kingsbury, of Southampton, who received a special certificate for the collection, and first-class certificates for the following varieties—viz., *P. sinensis magnifica*, rosy pink, very double; *alba gigantea*, large, single white; *filicifolia rubra*, single, very large, glowing rosy purple, beautiful in colour; and *filicifolia alba*, a fine single white. Mr. Toombs, gardener to W. S. Roots, Esq., Kingston-on-Thames, received a first-class certificate for *P. sinensis filicifolia rubra plena*, the first of a new strain of double-flowering Fern-leaved varieties, and, as such, an important acquisition. The flowers were perfectly double, of a purplish rose, but paler at the edges of the petals."

M.

COBÆA SCANDENS VARIEGATA.

WHAT a different appearance this climber has when planted out, and when scope is allowed it to develop its beauties, from that which it has when grown in pots, for it then often presents an unsightly appearance. At this place we have some plants in our large conservatory; they were planted last season, and are now in fine condition, being more than 20 feet high. They are trained, or rather tied, to a single wire, and have had but little attention paid them further

than picking off any unsightly leaves, and occasionally stopping some of the strongest shoots. One of the plants now forms a most magnificent column of variegation, contrasting well with the surrounding objects.

I strongly recommend this plant where rapid growth is required, and there is plenty of room; when confined, either as regards its roots or top, it soon becomes rusty. I give the preference to the variegated *Cobæa*, considering it in every respect superior to the plain-leaved kind. It delights in good soil. Our plants were planted in a good barrow-load of equal parts of strongish loam and leaf mould; in this compost they thrive remarkably well.

Wrotham Park.

JOHN EDLINGTON.

REMARKS ON STRAWBERRIES AND STRAWBERRY GROWING.

THE Strawberry crop of the present season has on the whole been a deficient one, for though in some places Strawberries have been very abundant and fine, in others they have been very few. This is easily accounted for. The two previous summers have been very dry, and Strawberry plants in exposed situations where the soil is naturally thin and light, suffered much from drought. It has only been by manuring and constant heavy waterings the whole of last summer that good crops have been obtained this season on such soils; where this has not been done the crops this season have been very deficient. Young plantations of Strawberries, where the soil is naturally a deep rich loam, have borne heavy crops of fruit.

I have grown most of the kinds of Strawberry that have been sent out during the last twenty years, and I have generally given them a fair trial, in most cases extending over a period of three or four years; the result has almost invariably been, that after a fair trial I have thrown them out of my collection altogether, and of the few sorts which I have retained I have generally limited my stock rather than extended it. I have had to fall back on my old sorts and extend their cultivation. If I had to limit the kinds I grow to three, I do not know of any three which I would select in preference to Keens' Seedling, British Queen, and Elton. I grow a dozen or more kinds at present; but no three that I grow, nor do I think any three kinds taken from the largest list, will produce so much fine fruit and furnish a supply for so long a time as Keens' Seedling, British Queen, and Elton. These are very old sorts, and too well known to require any description here. Sir Harry is a good useful kind, it is a great bearer, and furnishes a succession of fruit for a long time, but its coarseness is a great drawback. Jucunda is also a good kind, and so are President and Frogmore Late Pine. Eleanor does well in some places, and is a fine showy fruit; but with me it bears badly. Duke of Malakoff, Empress Eugénie, Carolina Superba, Sir Charles Napier, Oscar, Trollope's Victoria, Princess Frederick William of Prussia, Nimrod, Prince of Wales, and Admiral Dundas, have none of them done so well with me as to make me wish to extend their culture.

My mode of cultivation is very simple, and as many will now be making new plantations of Strawberries, I will briefly detail it. I have the runners layered in small pots as early in the season as a sufficient number can be got. They are well watered if the weather is dry, and they soon get well rooted, and are planted out before the roots become too much matted together. The ground for their reception is mostly (indeed it ought always to be), in good condition; it is not manured at the time of planting, but is either trenched or dug very deeply. I may here remark that the soil, when it is naturally thin, should

have a heavy dressing of manure, and should be dug deeply. I plant them in rows 2 feet apart, and about 20 inches from plant to plant; this I consider ample room for Keens' Seedling and all Strawberries of similar growth. Queens, Eltons, Eleanors, and others of similar growth I plant in rows of from 26 to 28 inches apart, and about 24 inches apart from plant to plant; this I consider, in general, sufficient width. If the land be a very deep rich loam the rows may be a little wider; but I do not think there is much advantage in it, especially if the foliage does not well cover the ground; as the latter then gets very parched in dry, hot weather. All runners are kept down by being cut off as they appear, and the ground between the rows is stirred two or three times with the hoe to keep down weeds, &c.

Early in the autumn, before severe frosts set in, a little partly-rotted manure is put around the plants; this protects the crowns from injury from frost during the winter, and by spring the soluble portion is washed into the soil by the rains, thereby greatly benefiting the plants and leaving a nice thin layer of clean straw for the fruit to rest on. In severe winters the plants will sometimes get partially lifted out of the ground by the frost; when this occurs, early in March, before the plants begin to grow, and whilst the soil is moist, I go over them and press them into the ground with my feet. When done soon enough, this does not injure the crowns in the least, and the plants do much better afterwards than if left partially lifted out of the ground.

After the crop has been gathered the following season all the runners and most of the old leaves are cut clean off, the ground between the rows is forked over or very lightly dug, all runners are cut away as they appear, and the ground is stirred once or twice before the autumn. A good dressing of rotten manure is again placed about the plants. When the crop of the following season is over they again receive similar treatment. I do not consider it profitable to leave the plantations after the fourth year. It is much better to destroy them then and depend on a succession of younger plantations.

With regard to watering, there is no doubt that after the fruit is set good soakings of water in dry weather are very beneficial by improving the size and quality of the fruit. In the absence of rain heavy waterings greatly promote the growth and vigour of the plants after the crop is gathered. Slight or partial waterings are of little, if any, advantage. If watering be attempted at all, it should be done thoroughly. There are many places no doubt where this can be done, but there are also very many where it cannot be attempted. I do not myself water the plants after they are first planted. Strawberries do very well here in general, and only suffer in extremely dry seasons.

Stourton.

M. SAUL.

A FEW NOTES ON ZONALE AND NOSEGAY PELARGONIUMS.

ON no class of plants has there been so much attention bestowed during the last few years as on the Zonale and Nosegay Pelargoniums. At present we have so many, that it is somewhat difficult to make a selection of the very best; but as I spent a few hours at Chiswick some days ago, where there is one of the best collections I ever saw, my notes of what I considered the best may not be uninteresting to the readers of the *FLORIST AND POMOLOGIST*, for most gardeners are now making such arrangements as will ensure the best display another season. Before, however, I advert further to these varieties, I may mention that there are others which are very good and suitable for particular purposes, but all of those which I shall mention are of good habit and free-flowering, except the variegated kinds, which I think are best (at least a

great many of them), with their flowers picked off, for then the beauty of their foliage is seen to greater advantage.

Among scarlets of the brighter and crimson shades, I should prefer Clipper, Glow, Commissioner, Manfred, Lucien Tisserand, President Reveil, and Adonis.

Of the lighter shades of scarlet down to rose, I should choose Hector, Forester, Viceroy, Bonnie Dundee, Roi d'Italie, Excellent, Tintoret, and Rebecca.

Of the white varieties, I should prefer Madame Vaucher, Purity, and Virgo Marie. I consider Purity to be the best of the whites yet out.

Among the painted and salmon varieties, I would give the preference to Amelina Griseau, Fanty, Monsieur Barré, St. Fiacre, Rosebud, Auricula, and Eugénie Mezard. This section makes a very pleasing bed.

As regards the pink shades, my choice would fall on Christine. Madame Barré, Helen Lindsay, Wiltshire Lass, and Beauté de Suresnes, are all distinct shades of colour.

Among the Nosegays, I prefer Stella, Cybister, Amy Hogg, Orange Nosegay, Le Grand, Indian Yellow, and Waltham Seedling.

Of the gold-leaved varieties, I would select Golden Christine, Circlet, Glow-worm, Beauty, Gaiety, Mrs. Pollock, Creed's Seedling, and Golden Fleece.

Among the silver-leaved varieties, I think most of Mountain of Snow, Flower of Spring, Mrs. Lennox, Silver Chain, Countess of Warwick, and Brillant Superbe.

The above are first-rate either for bedding or pot culture, and I would strongly recommend all gardeners who may go to London, to try and pay Chiswick a visit, and they will be amply rewarded for their trouble.

Crabwood, Southampton.

J. C. HIGGS.

REMARKS ON FRUIT TREE CULTURE.—No. 12.

It is a question whether root-pruning, properly so called, as applied to Peaches and Nectarines, is always the most judicious course that the operator can pursue whenever the necessity for a check upon luxuriant growth arises. So far as my experience enables me to judge, I am decidedly opposed to any extensive mutilation of the roots. It must be remembered that we possess in disbudding and defoliation a considerable power of control over the formation of roots, which arises from the fact that the action between the foliage and branches on the one hand, and the roots on the other, is reciprocal, and by checking the development of the former during the growing season, we not only interfere with the formation of roots, but prevent that excessive storing up of strength for future exertion, which results the following season in an over-luxuriant woody growth. Again, if during the progress of these manipulations we can so modify our treatment as to produce a good supply of fruitful wood, and at the same time can induce that fruit to set and swell off, we are still better able to dispense with any severe mutilation of the roots, because, if the trees show any signs of excessive luxuriance of growth, it is easy enough to leave double the number of fruit, or even more than that, which will so far exhaust the energies of the tree as in most cases to interfere very materially with the growth, and do its part in preventing a greater degree of luxuriant development than such as is absolutely necessary to keep up the strength and increase of the tree. On the other hand, there are often cases in which this fruit-bearing condition cannot be brought about, because, as I have before observed, the growth is so rapid as to cause the fruit to fall off abortive, and when this is observed, instead of adopting any severe mutilation of the branches, it is better to allow a more free development of growth, and at the

proper season to lift the tree entirely and replant it at once. I find this infinitely preferable to cutting the roots entirely off at a certain radius from the stem, which is all very right and proper in the case of pyramids, and all hardier fruits, but is scarcely applicable to so tender a tree as the Peach, nor is it so likely to be attended with the desired success as a careful lifting and replanting is calculated to produce. This will conquer the most obstinate constitutions, and bring about a more healthy growth of fruitful wood, and in less time than can be attained by any severe mutilation of the roots.

I have now touched upon most of the leading principles connected with the working and management of the roots and branches, and shall conclude my observations on Peach and Nectarine culture with a few remarks on some of the minor details, such as watering, protection, mildew, and insects.

The application of water to the roots, more particularly during seasons of drought, is an absolute necessity, and must be included in any good system of management. The quantity necessary to be applied will have to be regulated by the amount of rain during the season. In times of drought three thorough good soakings will be sufficient; but when the rainfall is sufficient to keep the ground in a moist condition it will only be necessary to take care that the trees have an ample supply when the fruit commences to swell off after stoning. In order to ensure an equable distribution of the water, it is best to prick up the surface lightly, and then draw the earth in a basin-like form at a certain radius from the stem in proportion to the size of the tree, returning the earth in a dry state after the water has passed down to the roots; a few handfuls of salt thrown in the water will always be beneficial. It is very important that the quality of the water should be looked to, because cold spring water, and even in some instances rain water from an underground tank, would be of too low a temperature, and therefore very injurious. The best is rain water which has been for some time exposed to the action of the sun, either in an open cistern or pond; and if there should be a slight admixture of manurial matter draining into such pond so much the better; but care must be taken that the latter do not predominate.

The question of protection is a vexed one; but the fact that the Peach is liable to start into growth very early and to bloom before the danger of frosts is over, would seem to point to the expediency of having some effectual means of shelter, to be applied under certain conditions of the atmosphere. When it is free from damp and drying winds prevail the blossom will bear a very low temperature without injury; but when alternations of wet and drought prevail, accompanied with sharp morning frosts, then a moveable protection should be applied. I prefer curtains of stout canvas, sufficient to keep off rain as well as afford shelter from frosts. With proper care and a little mending such curtains will last for fifteen or twenty years.

With regard to mildew, some varieties are much more liable to it than others. The Royal George, for instance, will take it sooner than any other sort; but all are more or less liable to it in certain seasons and conditions of the atmosphere. To keep it under I find the following mode effectual:—In the spring, previous to training-out the trees, I thoroughly paint the wall over with a thick composition, made up of about equal parts of clay, soot, lime, and flowers of sulphur. These should be thoroughly comminuted and mixed together in as dry a state as possible, and then water added to bring the mixture to the consistence of very thick paint. The great error in the use of such compositions is making them too thin, when the real object is to plaster up with a thick coat all the eggs or insects, so that they may be smothered, as it were. After painting over the whole of the wall, working the composition well into the crevices and nail-holes, paint over all the branches, when dry nail them to

the wall, and just before the buds commence swelling syringe the trees well with a solution of Gishurst compound, 2 ozs. to the gallon of water. Under this treatment mildew will not attack any of the forward growth, but will sometimes appear on the late autumn growth, which may be kept rather severely pinched back, and syringing with the compound frequently resorted to. One thing it is important to remember: the enemy must be attacked on its first approaches, for if allowed to entrench itself the difficulty of dislodging it is greatly increased.

Aphides and red spider may be kept under by frequent syringings with water alone, if used as a preventive; but if required as a curative it must have the addition of tobacco or Gishurst compound. In this, as in all other remedial measures, "Prevention is better than cure."

Redleaf.

JOHN COX.

FUCHSIAS.

I IMAGINE I hear the readers of the *FLORIST AND POMOLOGIST* exclaim, "What can any one have to say fresh upon this subject?" Well, I must acknowledge that to do so is a matter of no small difficulty, for if there is one class of plants more than another of which the cultivation has been well expounded, it is surely the Fuchsia. Within the comparatively few years which I have been engaged in gardening I have seen immense strides made, not so much in the cultivation as in the production of greatly improved varieties. Those who recollect Carolina, Oxoniensis, Riccartonii, Dr. Jephson, and the few other decent varieties that were once grown, and will mentally compare them with the best of the kinds now in cultivation, will at once acknowledge this, although their ideas and my own as to what are the best may be very different. I am not, however, going to say much about what are the best varieties of the present day, simply because in this matter, as in most others, tastes differ, and what I may conceive to be the best twelve or twenty-four may be immediately supplemented by some one else with as many more of a totally different description. There can, however, be no question that there are varieties enough to suit all tastes, whether the preference be given to small blooms and many of them, or larger blooms and few in number; dark or light, double or single, reflexed or not; and if none of these will satisfy those who are fastidious, let them describe to some enterprising cultivator what they do want, and he will soon produce a variety to their liking.

I have just now a lot of very nice pyramidal Fuchsias, averaging 4 feet high, mostly in 12-sized pots. I am rather proud of these plants, and as they are now showing an abundance of bloom, I may well look forward, so far as the Fuchsia is concerned, to being somewhat gay during the ensuing autumn. It may be of interest to give a list of the sorts I have, although I am by no means prepared to affirm that they are the best, but such as they are I give them. The kinds are La Favorita, a splendid dark flower and good pot plant; Percy, dark, double, one of the best for pots; Hugh Mollon, a very large Guiding Star, with the foliage of Venus de Medici; Princess of Wales and Sensation, with greatly distended corollas; Ami Hoste, flaked, double; Lord Elcho, good dark; Schiller and Rose of Castile, two of the freest light-bloomed Fuchsias in cultivation; Venus de Medici, Guiding Star, Her Majesty, Maid of Kent, Silver Swan, Annie, rather coarse, and Fair Oriana, these are all light-blooming kinds and well known. There are also Rifleman and Imperial, dark doubles; Marchioness of Bath, white corolla; Senator and Prince Imperial, single dark, both splendid pot plants; Souvenir de Chiswick, Duchess of Lancaster, Merry Maid, and a few others.

And now as to the cultivation. I like to put in the cuttings in the autumn, and let them stand in the cutting-pots through the winter; the top shelf of a cool greenhouse is the best place for this. Starting them in a little heat in February I shift them into 60-sized pots, finding them by that time nicely rooted, and in these they may remain for a few weeks until they have become 9 or 10 inches high, when they may be stopped. I pinch back also any side shoots that have made two joints. When they have started again they may be shifted into 48's or 32's, and a neat stick placed to each. Early in May, the plants having had the necessary pinching carefully attended to, and being now from 18 to 20 inches in height, may be shifted into 12's, their blooming pots, and be plunged in ashes or leaf soil in a sheltered situation out of doors, and well exposed to the sun. I happen to have a large wooden frame, which I use for hardening off Geraniums in spring, and having a floor of ashes; I stood the Fuchsias upon it, giving them ample space, and then filled up the intervals to the rims of the pots with ashes. Here they remained until the end of July, having in the meantime been evenly staked, occasionally turned round, and repeatedly stopped and pinched until they had become neat, short-jointed, pyramidal plants just showing signs of bloom. It was now time to remove them to their blooming quarters—I ought to have said to the conservatory; but as I do not happen to have one, I placed them upon a slightly-raised stage in a broad recess on the north side of the house. I find that the plants seem to revel in this shady position and cool temperature, and for developing their blooming qualities it seems to suit them admirably. Early in September, when our local exhibition is held, I shall exhibit some of the best of them, and I shall not be afraid or ashamed to stage my plunged, exposed, out-of-door-grown plants against any others which may have had all the assistance that glass houses and tender care may have bestowed upon them.

For soil I use about one half of the best loam I can obtain, and the other half leaf mould and rotten dung, with a small proportion of sand. For the shift into the blooming pots I place only one large crock over the hole, and then a good handful of horse-droppings. This serves the double purpose of drainage and food to the roots.

Maybush.

A. D.

OUR PEAR CROPS.

WE scarcely remember having ever had such a scanty crop as there is here this season. With the exception of a few trees all are bearing, comparatively speaking, no crop. Is the failure general, or only partial? I hope the latter, otherwise Pears will be remarkably scarce. As far as I have seen all growers seem to be served alike in this district; none can boast of anything like a crop, and what Pears there are upon the trees seem to me as though they will be much below the average in size.

Wrotham Park.

JOHN EDLINGTON.

ON THE CULTIVATION OF WINTER CUCUMBERS.

THIS is a subject that has been frequently discussed, but with the views held by different writers I have no desire to interfere, my object being to confine my statements to what has occurred during my own practice, and endeavour to show the superiority of pot culture as compared with planting in beds of soil. Were we to reason theoretically, we should naturally conclude that the latter plan offers decided advantages over the former: such is not the case, and experience proves it to be so. But however true, I have no intention to invade

the domain of theory and demand an unconditional surrender of general principles. Practice and theory stand widely apart, and must ever remain distinct. The former alone determines the existence of a specific fact; the latter offers simple counsel, hints, and suggestions, which never mislead if we are sufficiently awake to recognise its teaching.

Leaving, however, investigations of this character, I would remark that while I continued to grow my winter Cucumbers according to the system of allowing the roots to ramble about at will, my crops were constantly after the middle of November unsatisfactory. Vitality began to lose power, the fruit was small and deformed, nor did matters begin to improve till the end of February. There is little composure whilst smarting under defeats of this kind, for independent of the daily supply for salad, there is Monsieur constantly telegraphing from the kitchen. French cooks as a rule are not the most accommodating, they admit of no scarcity, and accept of no excuses. The above is not an exceptional case. I have never yet seen winter Cucumbers produced freely when treated upon the planting-out system. Too much liberty is positively injurious; nor would I confine my statement to the growth of Cucumbers, I would submit Melons at any season to the same amount of restriction. Further, I fear we are guilty of giving the roots of all our fruit trees too much extension, whether cultivated in our hothouses or in the open air. This evil is becoming yearly more apparent, and the period is fast approaching when it will be admitted as a fact.

That hot water is, and has long been acknowledged as the most convenient and reliable means of keeping the soil at a uniform temperature is a fact respecting which there can be no cavil; but the best means of distributing the heat in the manner most agreeable to the roots is still a matter of dispute. Some gardeners prefer heated chambers, and these may be found to work advantageously, yet after having given this method a trial for several years, I dismissed it as not altogether satisfactory. The plan I now pursue, is to cover the pipes from 15 to 18 inches deep with large stones, arranging them so as to form as many cavities as possible, and by this means I can command from two three-inch pipes 90° of heat if required. Brickbats are preferable, as they absorb and radiate the heat more freely.

The size of the pots is not very material; those which I use are from 15 to 16 inches in diameter, supported about 4 inches above the stones, so as to give freedom for the roots to pass through the bottom. The bed is then filled nearly to the rim of the pots with half-decayed leaf mould, into which the roots gradually find their way. The soil for potting is not always of the same character; but of whatever kind, I have it mixed, a year previously to being used, with a third part of cow or pig manure. It should be used comparatively dry, pressed firmly in the pots, raised about 4 inches above the surface, and finished off in the form of a flattened sphere, to prevent an accumulation of water, which will produce gangrene at the collar of the plant.

Plants treated in the way that I have recommended will bear profusely for a year. Those planted in the beginning of September 1865 are now with me as vigorous and healthy as at any period, and to all appearance would survive another campaign. No account has been kept as to the amount of produce, but the aggregate will number many thousands.

I do not hold up pot-culture as infallible. There are contingencies that interfere with the best-formed design for managing the roots. Atmospheric arrangements have likewise to be considered, such as stopping, ventilation, the proper amount of moisture, and the admission of a due amount of light, without which there is imperfect elaboration of the nutritive matter, and a sluggish decomposition of water.

As regards winter temperature, a great mistake is frequently made in keeping it too high at night, allowing little repose, and giving no compensation for the expenditure of the day. From 67° to 70° will, I believe, be found a suitable mean, while that of the day may range as high as 90°, more particularly if the digestive organs are strong, still to a great extent this should be governed by the state of the external atmosphere.

Of late years we have been overwhelmed with an endless variety of Cucumbers, highly recommended by their patrons as unsurpassed for winter work. There are Rifleman, Commander-in-Chief, Volunteer, Prizetaker, and others whose name is legion, many of which I have tried; but among all I find none to equal or even approach Sion House in merit, and have confined my principal crops to this variety for many years past.

Tortworth Court.

A. CRAMB.

NOTES ON THE CINERARIA.

THE Cineraria is the acknowledged favourite of every one, from the humblest amateur, who plants a pair of sashes on an old boxed-bed, and calls it a greenhouse, up to the noble lord, who rears his magnificent crystal temples consecrated to Flora, and adorns them with the rare, the rich, and the most beautiful of her subjects.

In every degree of this diversity of position we have an equal diversity of quality and appearance, from the splendid plant of 3 feet through, covered with innumerable and perfect blooms, with the broad massive leaves spread over the pot, down to the miserably ragged apologies without a leaf to cover the soil, struggling for an existence, with balls matted and dry, and weak flowers moving with green fly.

It must not be supposed that the latter are invariably found in the humblest structures; the reverse is the case: the marble stand too often supports them, plunged to their necks among other plants which serve to screen their nakedness.

To make a commencement, we will suppose the old plants after blooming have been cut over near to their pots, and are standing in a shaded, sheltered state, with their growths strong and healthy. Our hypothesis correct, about the beginning of August turn out the old balls, and remove the soil gently with the fingers until the stock-shoots are reached, carefully preserving the young rootlets, and with the point of a knife detach the strongest growths; retain double the number required of the strongest and most succulent, that there may be abundance to select from when the second potting takes place. The stock properly named, prepare a mixture composed of leaf mould, sand, and loam, in equal parts, and sift it through a fine riddle. Plant singly in pots 3 inches in diameter, give a good soaking of water, then remove them to a cold frame behind the wall, plunging them to their rims in coal ashes or rotten leaves. Keep the frames close for a few days, and be especially careful to shade in sunshine. If the frame stand not sufficiently in the shade, sprinkle overhead, after hot dry days, in the evenings; this will keep up a moist atmosphere, which the plants enjoy during the night.

In the course of three weeks or a month, the plants will have filled their pots with roots, when the proper soil comes next into consideration. Let this consist of one part sand and leaf mould, one ditto cow-droppings that have lain in a heap for a year, and two parts rich fibry loam; throw the whole together, and chop well up, after which pass through a one-inch riddle, when it will be fit for use. Next crock a sufficient number of pots 6 inches in diameter, and place a few of the lumps of the compost over the crocks; and make a selection

of the most robust plants, discarding those that are weak, or have a stunted appearance, as they are apt to start into flower too soon, and can only make shabby plants. The plants intended for growing on pot off, and do not overpress the soil in the operation; give a good watering overhead through a rose, and return them to the frame; shade if the sun shines for a day or two, and raise the lights behind sufficiently to permit of a good circulation of air in the frame.

Dispense with shading as soon as the plants have recovered from flagging, and endeavour to keep the plants moist both at the root and foliage; and when they are established in their pots remove the sashes in fine days, avoiding strong sunshine. About the beginning of October change the frame to a southern aspect, and let the plants have the full enjoyment of the sun, except in extreme cases.

As soon as the early winter frost endangers the plants in the frame, make provision for their winter quarters. Any house with sufficient artificial heat to keep out frost will do, if accommodation near the glass can be had, otherwise it is useless. As this is one of the most essential points in good cultivation, a shelf from 18 inches to 2 feet from the glass will produce, with attention, splendid plants for specimens.

Attend strictly to giving larger shifts as the plants progress, using the same soil all through; syringe overhead after strong sunshine, turn regularly, and remove weeds continuously, in case of breaking the large leaves. Give air on every favourable occasion, and give a smart smoking every time green fly makes its appearance. When the flower-shoots make a start, put the plants into their last shift of pots, and peg out their lower shoots.

Some pick out the leading shoots at this stage. This, in my opinion, is wrong, as it spoils the natural elegance of the plant. The *Cineraria* naturally forms its head of flower into a half-globe, of a flattened pyramidal form, which, with the assistance of pegging, is much improved, and when the branches have pushed out beyond the pots, a few light stakes crossed horizontally over the surface, and tied to the rims of the pots, will keep them in position; and the higher tiers of shoots can be fixed in their places, with threads of matting attached to the branches thus trained out.

As soon as the plants have filled their last shift of pots with roots, liquid manure waterings regularly twice a-week, at the rate of forty gallons of soft water to 1 lb. guano, ought to be given them up to the time they are breaking into general flower. In conclusion, attend regularly throughout every stage of their growth to watering, syringing overhead, airing, turning their pots, training outside branches (without sticks), except those already referred to, and keeping clear of green fly, to the day they are turned out of doors.

A. KERR (in *Scottish Gardener*).

PICEA NORDMANNIANA.

PICEA NORDMANNIANA is second to no Silver Fir now in cultivation for symmetry and beauty. It grows here with remarkable freedom, making in some seasons yearling shoots from 2 to 3 feet and even more in length, and becoming densely clothed with branches. Its foliage is, on the upper side, of a beautiful dark green, smooth, and shining; and on the under surface of a silvery hue. It has not, however, been seen with us in its greatest beauty till last winter, when I was surprised and delighted to observe that in the case of two large tall trees growing here, the under side of the foliage on the most aged parts had become of the most beautiful shining silvery white; as the wind turned them up to the sun this feature was truly beautiful.

The cone with us is of a reddish brown colour, and from 6 to 7 inches in length. The trees, which for several years only produced male catkins, have also borne seed, which ripened here in the last week in September or first week in October. The seed requires watching, in order to collect it when ripe, for the cones burst open quickly on a sunny, drying day, and very soon shed their seeds. Like all the *Piceas*, the trees bring their seed to perfection the same season as that in which the cones are produced; but it is not so with many of the *Pinus* family, the growth and ripening of whose cones take from two to five or six years, and in many cases four years. On this subject I may have some remarks to offer on a future occasion, for the information of amateurs and those who have not had the opportunities which I have enjoyed of observing Conifers in this country.

Bicton.

JAMES BARNES.

THE BALSAM.

It is nearly three hundred years since the common garden Balsam (*Impatiens hortensis*), was introduced to England from the East Indies, or from Cochin-China. From it have come the beautiful varieties that recently made the name of Smith so famous, and which are also so much cultivated by many growers in every part of the country. They are very largely grown, though so seldom seen at the London exhibitions. At the summer shows held in the provinces they generally put in an appearance, but are rarely produced as they ought to be—as dwarf, compact, and yet bushy plants, thickly hung with flowers, and these of a large size and very double. Too often there is a large redundancy of foliage, and that in many cases much drawn, and, consequently, the flowers are immature and unsatisfactory. Very recently, I saw at a large provincial flower show some Balsams grown in this wise—out of four collections of six plants each, there were scarcely two plants that could be termed creditable specimens of culture.

There is considerable difficulty in getting a thoroughly good strain of Balsam seed—the seed saved in England does not meet the demand, and recourse is had to the Continent to procure a supply. It is but rarely that first-class continental seed can be obtained, and even in cases where seed from the finest strain of English-grown plants has been sent to the Continent to be grown from, it invariably degenerates, probably owing to unskilful culture. Growers of this favourite annual, so worthy of cultivation, should endeavour to secure a good strain of seed, and save some from the very best flowers only when they have them in first-rate condition. Balsam seed will preserve its germinating power for several years—in fact, seed five and six years old has been found to produce better plants and more double flowers than newer seeds, while some of the best growers of the Balsam always keep their seeds two or three seasons before sowing it.

Next in importance to the necessity for a good strain of seed is that of good cultivation. From the same packet of seed have been raised plants that produced very different results—in the one case fit for the exhibition-table, in the other for the dunghill. The two results have been well described by a very successful cultivator:—“Very fine plants with stout, sturdy, tree-like stems, covered with fine, large, *Camellia*-like flowers, interspersed with fine, dark green, shining foliage, being the produce of one cultivator; while, on the other hand (from the same packet of seed), the plants were slender and thin, with semi-double blooms, altogether presenting a very meagre appearance. Now, it is very hard to convince some people that all this difference is purely

the result of cultivation. Instead of searching for the cause at home, they immediately blame their unfortunate seedsman." This has been well put, for it is a fact that seedsmen are often made the scapegoat for the offences of unskilful and careless gardeners, and it is unjust that a good reputation should be so slightly valued by them.

A very famous cultivator of the Balsam, though one scarcely heard of beyond the circle of his own locality, adopts the following as his method of cultivation, and his results are such as to justify the rules observed. He says, "Fifteen or sixteen weeks before I require the plants in bloom, I fill with soil to within half an inch of the tops as many small pots as I require plants, I press with my fingers two good seeds into each pot a little apart, and place them in a hotbed within a few inches of the glass; when they have come up and have stems above the tops of the pots I draw the weakest plant out and fill up to the top of the pot with fine soil around the stem of the young plant, which will soon root into the soil. As the plants advance in growth, I give them a shift into pots a little larger, keeping the ball of the plants well down, so as to cover a part of the stem; this will enable the plant to make new roots, by which it will receive great benefit. Keep the plants while growing in a humid warm atmosphere; nothing suits them better than a manure hotbed, giving them room, and tilting the frame as the plants reach the glass."

These are the simple principles by which the most important advance is made, and by the time this point is gained the plants will soon be ready to shift into their blooming-pots. This being done, great care must be taken of the lateral shoots so as to insure symmetrical growth. It is usual to tie a piece of string or matting round the pot just beneath the rim, to which the lower shoots are tied; but the tying process should be done very carefully, and the shoots brought down to their place by degrees. The tying material should be very soft, as the stems are very tender and are soon injured.

Pots about 8 or 9 inches in diameter do well for blooming the plants in, and the compost should be good loam and an old spent Mushroom-bed in about equal proportions, or a third of decayed turf, a third of well-rotted manure, and the remainder leaf mould and sand. When the pots become well filled with roots manure water should be applied twice or thrice a-week, but it should be carefully diluted. Sheep-droppings are strongly recommended for this purpose, and they are easily procurable. A gentle syringing with soft water, daily performed, is very beneficial to the plants. Plenty of room and air should be given in hot weather, and the plants should on no account be suffered to flag for want of water. This can be freely administered in dry weather, and light and sunshine are equally indispensable.

Careful tying-out should not be confined to the plants intended for exhibition. Gardeners will often bestow great pains on these, while those intended for decorating the conservatory are left slovenly and uncared for. Not long since I walked through two private gardens to look at the Balsams. In the one case the plants were the most striking thing in the conservatory. Well-grown, well-bloomed, and carefully tied-out, they were made the most of, and did great credit to the gardener. In the other group there were present good culture and good quality, but no tasteful eye or artistic hand had made the very most of the plants, and they looked worse than they really were. Why should not the conservatory be an exhibition also? Surely the credit to be obtained there is as useful at least to the gardener as the many prizes obtained elsewhere.

Balsams have been divided into two classes—the Camellia-flowered, and the Rose-flowered. The latter were supposed to have their petals more cupped

than the latter. A good strain will also contain flowers of both these divisions, so there is no certainty in keeping them distinct.

In order to preserve a succession of blooming plants, some can be retarded by delaying giving them larger pots, but they should be well supplied with water, and some manure water ought to be administered also. Mr. George Dawson once recommended, that the plants to be retarded should be kept near the glass, that a free circulation of air should be permitted, and that when any flower-buds offered, as soon as their footstalks were a quarter of an inch long, they should be rubbed off with the finger, and that this operation should be repeated even a dozen times if required. Thus, in Mr. Dawson's experience, from one sowing there could be kept up a good succession of Balsams in flower from the middle of May to the end of November.

Quo.

A FEW OBSERVATIONS CONCERNING VEGETABLES.

HAVING been kindly invited by "E. W." in last month's *FLORIST AND POMOLOGIST* to give my experience with some of the new vegetables that yearly swell the fat catalogues of our leading seedsmen, and as I generally procure all new sorts of Lettuces, Cauliflowers, Broccolis, Cabbages, and Peas, as soon as they come out, I gladly beg to inform "E. W." what kinds I have tried and found the best. Ivery's Nonsuch Lettuce I have grown for the last two years, and find it an excellent variety for summer use. The Holme Park Cos Lettuce I have not grown yet. For sowing now (August) for standing the winter, the Bath Cos, Hammersmith Hardy Green, and Tom Thumb Cabbage Lettuce, I consider the best.

Cauliflowers with me this summer have done very badly, the best being the true Walcheren from early spring sowings. All the autumn-sown under hand-lights and in the open ground came generally with strangely-shaped heads and small, and I hear of many of my neighbours complaining in the same way. My list of varieties comprised Asiatic, London, Lenormand's, Early Paris, Erfurt, Mitchell's Hardy, and Squibb's Dwarf. Of these I consider the Asiatic and London the best of the tall-growing varieties, and Squibb's, if true, the best of the dwarfs; but there is none better than the Walcheren, if true, for summer and autumn use.

As to Broccolis, their name is legion, and a great many might be discarded from the catalogues and never missed. The early varieties I have selected and find the best for succession and good qualities are the following:—Grange's Early Cape, Snow's True Winter White, Early Penzance, Dilcock's Bride, and Osborn's Early White. This last variety is very distinct, and does not stand severe winters in the midland counties, having a deal of the Cauliflower breed in it. For April, May, and June I have found the following keep up a good succession:—Knight's Protecting, Dalmeny Late; and for the very latest, the Richmond and Carter's Champion. Cattell's Eclipse I am trying this year.

On the vexed question of early Peas some strong opinions have lately been expressed, that we have been buying old sorts for new, and at high prices. I am certain of one thing, that as to the earliness of Peas much depends upon the season, and that an old variety, called the Early Kent (or Nimble Tailor), could be got as early in May in the open air as the First Crops and Ringleaders of the present day. Having a glass-covered wall, 800 feet long, I this spring had all these new early Peas grown in pots, and found that although the first crop on Ringleader was about a week earlier than Sangster's No. 1 and Carpenter's Express, the size of the pods was so small, only two or three Peas being in them, that I shall give up growing these early Peas in pots for the

future. First Crop in the open air is likewise very short in the pods, and ripens all at once; but Sangster's No. 1, although a little later, is a better podder and bearer.

The Peas this year which I have found worth forcing are Beck's Tom Thumb and Turner's Little Gem. These varieties can be grown in pots in frames or low houses near the glass, and will produce pods worth looking at, and are of excellent flavour when forced early. Another early wrinkled Marrow, called Advancer, also forces well; it is dwarf, and makes a good succession to the others. In the open air this variety can be had ready for gathering only a week or ten days later than these small early kinds, and there is no comparison as to its flavour and productiveness.

In a large establishment where Peas are required from the middle of May till frost cuts them down, I have succeeded best with the following list:—For the earliest: Ringleader, or First Crop, and Sangster's No. 1; early Marrows: Advancer, Prince of Wales, Long-podded Tom Thumb, and Laxton's Prolific, an excellent large-podded new kind. For late and successional purposes: Veitch's Perfection, Premier, King of the Marrows; and for the very latest, Knight's Dwarf Marrow and Hairs' Mammoth I find are the best sorts. With the above varieties I believe the best and surest succession of Peas might be kept up that it is possible to select from the present over-grown lists of seedsmen. As some prefer the flavour of the old Blue Prussian varieties, Bedman's Imperial and Batt's Wonder will be found good sorts.

Welbeck.

WILLIAM TILLERY.

BROWALLIA ELATA.

"A. D.'s" note on *Trachelium cæruleum* was a well-timed recognition of a charming old plant, "somewhat neglected," as he truly says. Any one who has this season seen it produced at the meeting of the Committees at South Kensington, from the gardens of the Royal Horticultural Society, will be ready to endorse most heartily all that "A. D." says respecting its value and attractiveness. The name of another old favourite which time has used badly heads this paper. *Browallia elata* is an old Peruvian annual, so old as to have reached nearly the age of a century, and yet it deserves that care and attention bestowed on many new favourites not possessing one-half its charms. I have within the last few days seen it in flower at the nursery of Mr. William Dean, Shipley, Yorkshire, and the pretty cerulean blue flowers were strikingly gay and attractive. In a cool house several plants of it were in flower that had been raised from seed early in the spring. The seed was sown in March in a mild heat, and the plants had been pushed on in a stove-house, but pinched back to make them bushy. It should have a place in a greenhouse at this season of the year, where it would be a fitting companion for the Balsam, Cockscomb, &c., now so useful for decorative purposes.

E. W.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

August 7th.—A very pretty group of cut spikes of *Gladioli* was shown by Messrs. J. Veitch & Sons. Among them were fine examples of *Brenchleyensis* but wanting that peculiar vermilion hue of colour that Messrs. Youell & Co. always impart to their flowers of that variety. Whether it is owing to some peculiarity of soil, &c., at Yarmouth, or whatever else may tend to produce it, there are always in the spikes of *Brenchleyensis* that Messrs. Youell occasion-

ally produce a depth and vividness of colour clearly noticeable. Other varieties from Messrs. Veitch were John Waterer, pale rosy cerise, with carmine stripes and white throat, pencilled with crimson-purple; Milton, pale pink streaked with purple and carmine, a very fine variety; Calendulaceus; Ninon de l'Enelos, very fine; Lord Byron, intense bright crimson, with white throat, flowers large, but wanting form; La Quintinie, rosy salmon and carmine, the throat pencilled with reddish purple, a good showy flower; Princess of Wales and Shakespeare, both large light flowers, but too much feathered on the spike; John Bull, white or very pale blush, with lemon throat pencilled with crimson, large and very fine; and Mowbray Morris, bright crimson, pencilled with rosy purple on the lower segments, a small flower, but very striking in colour.

Mr. W. Chater, of Saffron Walden, had some spikes of seedling Hollyhocks, to two of which—viz., *speeiosa*, salmon buff suffused with crimson, very close, full, and fine flowers; and Frederick Chater, a kind of sulphur-buff colour, flowers close and full, first-class certificates were given. A second-class certificate was awarded to Edward Speed, a very novel variety, a kind of pale purplish grey in colour; the flowers were close and good. Other varieties were Attraction, rosy pink; Glory, pale crimson, large flowers, but somewhat loose; Nonpareil, maroon crimson, a good close flower; Alba superba, white; and Lord Palmerston, pale rose. The point of interest of the meeting was centered in the magnificent variety of *Lilium auratum*, called *splendida*, exhibited by Messrs. Cutbush & Son, of Highgate, which is the best marked variety yet seen. The flower (for it had but one), was of large size, of good form, and instead of the usual orange-coloured band on each petal, it had one of a dullish crimson. It was produced by one of a few bulbs that remained unsold in the spring in consequence of their small size, and fortunate was it for Messrs. Cutbush that it remained unsold. The variety was awarded a first-class certificate.

From Mr. Turner, of Slough, came four seedling Pelargoniums of the Nosegay section—viz., Duchess of Sutherland, purplish rose, dashed with orange scarlet, a fine shade of colour, very free blooming. A first-class certificate was awarded to this flower at a previous meeting. The others were Lady Constance Grosvenor, having large trusses of bright, deep orange scarlet flowers, awarded a first-class certificate; International, a great improvement both in the substance and colour of the flowers on Paul's Black Dwarf, the habit being the same, the colour of the former rich crimson scarlet; and Countess of Sefton, a good shade of rosy scarlet. Messrs. E. G. Henderson & Son also sent a quantity of variegated, Nosegay, and Zonale Pelargoniums, to one of which, Christine Nosegay, a first-class certificate was awarded. A special certificate was also awarded to them for their collection of plants. Among a group of things from Messrs. Carter & Co. were capital plants of the variegated Maize, which are said to come best when sown in the open air, and two Lobelias—viz., Attraction, a variety very like Paxtoni, and Beauty of Ravensbourne, very dwarf and compact in habit, with plenty of small lilac flowers, having white centres; to this a second-class certificate was awarded. To Mr. A. Henderson, of Thornton Heath, Croydon, a first-class certificate was awarded for a strong branch of the climbing Rose *Devoniensis*, with a large terminal cluster of flowers.

There were also plenty of new plants, Orchids, &c., to several of which certificates were awarded.

Fruit was represented by a very fine Enville Pine Apple, weighing $7\frac{3}{4}$ lbs., from Mr. Carmichael, of Sandringham, which was sent to Marlborough House. From Mr. Keynes, of Salisbury, came some Grapes, and Grapes were sent

from other sources also. There were besides Gooseberries, Apples, Potatoes, and some very large pods of the Rat-tailed Radish from Mr. W. Melville, of Dalmeny Park.

R. D.

THE CORREA.

THE Correa is an old and was formerly a favourite greenhouse plant. *C. alba* has a small white but rather mean flower; *C. pulchella* has a larger brilliant orange scarlet; *C. virens* a pale green, and *C. speciosa* a crimson flower with green tips. These have been for many years as common as any greenhouse plants in cultivation, and no particular progress was made beyond producing them, as usual in neglected greenhouses, very large and very ugly; indeed of late years *Correa alba* has been regarded only as a stock to work better sorts on. *C. rufa*, with its rusty leaves and pale green flowers, was next introduced; and last, *C. cardinalis*, a bright red and green, the handsomest of them all, but unfortunately apt to be rather bare of leaves.

Mr. Milner, of Clapham, was the first in this country who successfully crossed the several species of *Correa*, and those who remember the noble specimen of *Correa Milneri* in 1838 or 1839 will be able to appreciate the greatest improvement of any that has been the result of crossing in this country. *Correa Milneri* was one of a hundred seedlings which among them possessed all the best features of the best old sorts. *C. Milneri* was a crimson scarlet or a scarlet crimson of rich texture, with flowers above the average size. It was, however, so experimentalised on that it was soon lost altogether. In the meantime a lot of the other seedlings got distributed, such as *C. Lindleyana*, *C. Cavendishii*, *C. longiflora*, *C. grandiflora*, *C. rosea*, *C. bicolor*—not the bicolor that was dirty red and dirty white, but the bicolor that was conspicuous for the brilliance of its crimson, the cleanness of its green tips, and the elegance of its habit. The plant became deservedly popular, and considering there is not a single greenhouse plant so truly beautiful from November till March, the most dreary time of the year, it is to be regretted that it does not more generally work its way into modern collections. I attribute this to a fact which cannot be gainsaid. The great bulk of plant-growers order their stocks from those specimens which figure at the exhibitions, consequently winter beauties are generally neglected, and conservatories comparatively bare of bloom; nobody thinks of what they do not see, and gardeners find quite a distinct business in providing for shows. Mr. Milner continued to raise seedlings, and as he left the neighbourhood of London to begin farming, where flowers would not be appreciated, the whole of the remainder went into the hands of the late Mr. Gaines, of Battersea, who named and sent out several, but the buyers of such plants were few.

No conservatory ought to be without a dozen of the most striking varieties, for they are one mass of bloom during five or six of the barest months in the whole year; they are free growers, abundant bloomers, by no means tender enough to be hurt by a slight frost, want but little attention, are better without fire heat than with it, and well repay us for the room, attention, and labour they require. Again, having taken to sport, there is no saying to what end the improvements might be carried. Those who desire to raise seedlings should procure, in the first instance, half a dozen or a dozen of the best and most conspicuous sorts. Let them be grown in an ordinary greenhouse, close together, from November until they are completely out of flower. There will be found on some of them a pod or two of seed; take off the pods, dry them in the shade, and before they have been dry a week, sow them in pots.

The soil adapted for seedlings would be good for the largest plants, except

that there is a watchfulness observed towards small things which is rarely carried through to larger ones. The *Correa* being naturally a well-formed shrubby plant wants very little care as to exciting composts; one-third loam, from the top 2 inches of a pasture, laid together and rotted with all the turf in it, and two-thirds good turfy peat, such as is adapted for Heaths—that full of partly-decomposed fibre, which keeps the texture light and porous; these, well mixed together by repeatedly stirring them and rubbing them through the half-inch meshes of a wire sieve, will be the best soil that can be used. Let a quantity of this be placed in a good-sized pot, the top made very level, and as solid as it will become by striking the bottom down upon the potting table; the seed may be sown as thinly as possible and evenly over the surface, a little of the soil put in a fine wire sieve, and as much small stuff sifted over the seed as will cover it and no more. Place the pot in the greenhouse, and although it ought not to be wet, take especial care that it never becomes thoroughly dry. Seed-pans neglected a few hours at the critical moment when germination has begun, are sure to suffer; the drought would kill the seed, but in large pots the earth is a long time before it gets too dry, because of the greater body. In wetting the seed, do not fall into the common error of watering the top half-inch of soil, under the notion that a little is sufficient for little subjects. You must water so gently that you must not disturb a grain of sand, for if you do you disturb the seed also. The best way to water all light seeds lightly covered is to dip a common clothes-brush into a pail of water, hold the hairs upwards, and draw your hand along the hairs with a gentle pressure towards you. The water flies off in such small particles as will disturb nothing, and yet in such quantities as will soon wet the seed. If the seed is not allowed to dry after it is sown, in due time every seed germinates. By the time the young seedlings have made good leaves they must be pricked out, and the most effective way is in 60-sized pots, all round close to the edge of the pot and an inch apart. Fill these pots with the same sort of soil, knock the pots against the table to let the earth settle down a little, and with a piece of wood, cut flat, and a little pointed, like a knife, lift up the soil in the seedling pot, so as to release a few at a time without disturbing the roots. With the same instrument make small holes close to the side of the pot which the roots may touch, and close the soil upon them. The pots should then be put close together in the shady part of the house, and a hand-glass over them; the drainage of these small pots may be a lump of the peat, such as does not go through the sieve, or an inch thickness of moss, or a flattish piece of crock to go over the hole, and small pieces to fill up level round it. The watering of these newly-planted seedlings must be as carefully done as in the earlier stages. The plants while young will require continued shading, and it will not do until they are fairly established in their first pots, a single plant in a pot, to treat them as established plants. Although a sunny hour within its influence would bake the sides of the pot and burn up the roots, yet the warmth of the pot, the facility with which air can get down to the roots, and the moisture which the pot absorbs, and in turn supplies, are all favourable to the advancement of the young plant when kept from the full influence of the sun.

By the time the plants have made good growth and full roots they will be ready to take their places in the middle of the same sized pots which have hitherto accommodated half a dozen round the edges, and with drainage as before. In potting, carefully divide the ball into as many pieces as there are plants, and without disturbing each plant, place the root and soil together in the centre of the pot, fill up all round by poking down the compost with the fingers, but not too tight, adjust the plant so that it is no deeper in the soil than it was, water carefully without disturbing, and let them be placed under hand-glasses

(although in the greenhouse), for three or four days. They may then be released from the hand-glasses first; next, placed on the shelves, where they can be shaded an hour or two through the hottest sun; and lastly, as they get better established, put upon any of the shelves near the glass, where they cannot be overlooked as to watering, or be otherwise neglected, and they will be done with, except for the ordinary attention that belongs to all plants, until their roots reach the edge or sides of the pot, and begin to get matted and cross each other all over the surface next the pot.

The plants will show whether they have made their first growth fairly and want a rest by one thing, which is unerring in all plants: while they are growing and want no rest the top leaves of each shoot are smaller, and the centre leaves smallest, but when these end leaves have grown nearly the colour and size of the others, and there are no young leaves opening, or rather the youngest have grown nearly to their size without others coming, the plant will be better for rest—that is, it may be placed in the coolest part of the greenhouse, have no more water than is just enough to preserve it from drying, and merely be watched until there is a movement in the fresh growth; then shift them all into pots a size larger, say from small 60's, which may be called $2\frac{1}{2}$ inches across, to large 60's, which are $3\frac{1}{2}$ inches across, or even to 48-sized pots, which are $4\frac{1}{2}$ inches. But although large shifts, as they are called, which means a jump over one or two intermediate sizes, saves trouble, they are not beneficial to the plants, and it is preferable to move them only one size at a time. Let the draining of these second-sized pots consist of crocks an inch in depth. Water them all as fast as they are changed from one pot to the other, and place them in the shade till the next day, when they may take their places on the shelves or out of doors; according to the season, as the case may be. After May they are better out of doors, on a hard bottom impervious to water and worms, because their roots cannot then strike into the soil, which causes an unnatural growth for the time, and a violent check in the end when they are returned to their winter quarters. If there is plenty of accommodation, a common garden frame and light in a northern aspect will be the best summer residence, but it is essential that the bottom be hard, and that water may not lay there nor sink into the earth, but run away altogether.

When the season's growth is over, there will be the same reason as before for giving rest by stinting the water and keeping the plants cool and light, especially if they are to be wintered in the greenhouse. They will in all probability the third season produce bloom; when, therefore, they start growth, let them be instantly repotted with the same kind of compost, in a size larger pot, and be treated as before during the growth, whether it be in the greenhouse or in the garden. They will now grow till they show bloom, or at least many of them will; and by the time they are to be moved to the greenhouse they will be in bloom, and continue so the whole winter, when all that are good for nothing—that is to say, all that do not equal those we have as to form, and with new colours, or are not better in form and equal as to colour, should be thrown out. To multiply varieties by recognising trifling differences has been the bane of floriculture. Hundreds of flowers, so like each other that common observers cannot see the difference, are nevertheless cultivated for sale, and growers find no difference but the name. It is, therefore, of the highest consequence that everything that is not a manifest improvement upon what we possess already should be thrown away. Choice novelties may be propagated.

In the *Correa* we have for a universal stock *C. alba*, a robust and healthy species, growing freely, and for the most part greatly assisting any less robust kind that may be grafted or budded on it. The grafting of the *Correa* is easily performed. Shave a flat side to the stock, and a similar flat side to the piece

intended to be grafted; bind these firmly together, so that the barks of both meet on one edge at least, and cover the join with grafting wax to keep out the air.

Propagation by cuttings is a very simple operation. Cut off the ends of shoots, when the plant has done growing, two joints long; let the under part be cut with a sharp knife close up to the joint. Prepare pots by filling them within half an inch of the top with the usual soil, laid very level, and half an inch of sand above. Press the bell-glass which is to be used as a cover on the sand, to mark how much space is available, and then thrust the cuttings through the sand, so as to touch the soil but not enter it. Water well to settle the sand close to the stems, and cover with the glass. Let the glass be wiped every morning, and be shaded during the hot sun. Generally speaking cuttings root freely, and the stocks of *C. alba* must be provided by cuttings. In rejecting seedlings, robust-growing ones may always be kept for stocks, although rejected as varieties; they are just as good as any to work others on—that is to say, if they are strong growers.

The properties which constitute perfection in the *Correa* are these:—In habit they must be shrubby, short-jointed—that is, with close foliage, and branching horizontally. The leaves must be dark green, smooth on the surface. The flowering must be continuous, abundant, and distributed all over the plant. The flowers must be tubular, but barrel-formed in preference to pinched in—the lower part bell-mouthed and reflexing; the outer surface of the same texture as the inside; the edge without indentation; the barrel without corners, flutes, or ribs; the mouth two diameters of the neck, the length same as the leaf; the footstalk short; the flowers pendent. Selfs must be of the same colour inside and outside the flower. In variegated flowers, if there are two colours, the tube must be of one, and the neck and mouth of the other; if a third colour, it must be confined to the lips only. The greater the contrast the better, all the colours being bright, or rather dense, and the more abrupt the transition from one colour to another the better.

The *Correa* is capable of being vastly improved, and as a winter-bloomer is worth the attempt. We have already some very decided colours, especially in *C. cardinalis*.—(*Gardeners' Chronicle*.)

STRAY NOTES.

CONVOLVULUS MAURITANICUS is a charming plant for a window box. It grows and flowers profusely. The blossoms close early in the evening, but yet remain open during the day. Young shoots spring up from the root to replace those whose flowers have expanded. As a basket plant it will be very useful indeed.

In the same box *Thunbergia aurantiaca* flourishes well, and gives plenty of blossoms. Entwined among the *Convolvulus* the two form a very pleasing contrast. During the recent cold weather it made but little progress; but since the hot weather set in it has grown rapidly, and flowers freely.

E. W.

OUR CONTEMPORARIES.

L'ILLUSTRATION HORTICOLE for June and July, has plates of the following plants;—

Phormium tenax foliis variegatis (Variegated New Zealand Flax).—A good

though somewhat highly-coloured representation is given of this plant, which during the spring and summer has been exhibited with very good effect in several collections of fine-foliaged plants. It is only necessary to add that its long graceful leaves are very distinctly striped with yellow.

Camellia Marianna Talenti.—A variety of Italian origin with rosy cerise flowers, veined with a deeper colour, and having a broad white stripe down the centre of each petal, these stripes being most numerous and conspicuous near the centre of the flower.

Anthurium Scherzerianum, figured in our last Volume. The colour of the brilliant scarlet spathe is well rendered.

Lobelia coronopifolia.—The plate is copied from the "Floral Magazine" of September, 1865, which is also given as the authority for the description, M. Lemaire not having seen either a living or dead specimen of the plant. He doubts, however, whether it is the true *Lobelia coronopifolia* of Linnæus.

Tea Rose Isabelle Sprunt.—The flowers are described as being large, of a very pale sulphur yellow, deeper in colour towards the centre, and very sweet-scented. It is said to be very free-flowering, and to have this peculiarity—that the leaves are edged with red. It was raised by Mr. Buchanan, of New York.

The FLORAL MAGAZINE for August, has representations of

Pelargoniums Lord Lyon and *Favourite*.—The former is a very large flower, having bright rosy crimson upper petals with a dark blotch, rosy pink lower petals slightly veined, and a white throat. *Favourite* has brilliant crimson maroon upper petals, with a narrow fiery crimson border, deep rosy crimson lower petals, with a dark spot towards the base of each, and a pure white throat. Both varieties were raised by Mr. Hoyle, of Reading.

Rose Miss Margaret Dombain.—A seedling of La Reine, obtained by M. Eugène Verdier, and one of the best of the Roses of 1865. The flower is large, globular, and very full, of a bright rosy pink.

Azaleas Charmer and *Vivid*, the former magenta purple, the latter deep red, are two Belgian varieties in the hands of Mr. Bull. The flowers are large, well-formed, and very showy.

OUR MONTHLY CHRONICLE.

THE past month has not been a stirring one as regards horticultural matters. The London season is now over, and departures to mountain and moor have been the order of the day. Our flower gardens are now displaying their beauty of bloom; and fruits, where the untimely frosts of spring have spared them, are ripening fast; we feast our eyes on the one and stretch forth our hands to pluck the other. Horticulturists, like other people, must have their annual holiday, and they are now hastening from place to place, enjoying that rest which change of scene and occupation affords, and gleaning many useful hints from the practice of others.

The British Association having selected Nottingham as their place of meeting this year, a grand floral fête was held there from the 23rd to the 25th of last month, and from the very large number of subjects exhibited, and the numerous attendance of visitors, it

proved a great success. Not only did exhibitors attend from the surrounding district, but some came even as far as from London. Mr. Williams, of Holloway, in particular, contributed his finest ornamental-foliaged plants and exotic Ferns in large numbers, and a few of his best Orchids. The Show was especially rich in Ferns, indeed a more numerous assemblage of these elegant plants we do not recollect to have seen anywhere. There was a fair exhibition of flowering plants, and excellent cut blooms of Roses, Dahlias, and Hollyhocks; but fruit was deficient in quantity, and, as a whole, not more than of average merit, whilst of vegetables there was but a limited show. Next year the Association holds its meeting at Dundee, under the presidency of the Duke of Buccleuch, and there, too, let us hope the occasion will be improved to show what our northern gardeners can do. A grand display of fruit they ought to, and will, no doubt,

produce if suitable prizes be offered. The Crystal Palace Show, on the 5th and 6th of this month, that at Edinburgh on the same days, and the Brighton Exhibition in the following week, are events which will be looked to with some interest.

ROYAL HORTICULTURAL SOCIETY. — The fortnightly meetings continue to sustain their interest, and the subjects brought before the Committees increase in number as the season advances. Indeed, these meetings have quite assumed the character of small exhibitions, at which, instead of a heterogeneous mass of materials, all the subjects shown are either novel, or, if old, of real interest: such meetings are most instructive. In addition to the Society's other shows, it has been determined to hold one annually in connection with that of the Royal Agricultural Society. Next year Bury St. Edmunds is to be the place of meeting for the latter Society, and if sufficient encouragement be held out by the district, the experiment of holding an annual migratory horticultural exhibition will be inaugurated. That such an exhibition may be made most conducive to the advancement of horticulture is certain, and that it may be made financially successful there is every reason to believe. We also understand that the Council have arranged that Mr. Eyles, the Society's Superintendent at Kensington, shall give to the Fellows his advice and assistance in the laying-out and management of their grounds at a guinea a visit, and this privilege will no doubt be regarded as a boon by many who have hitherto been unable to avail themselves of Mr. Eyles's great experience in such matters. On Monday, the 27th inst., when the gardens were thrown open free to the public, in commemoration of the Prince Consort's birthday, upwards of 100,000 persons visited the grounds. The bands of the 1st and 2nd Life Guards, and of the A, B, G, H, and T divisions of Police gave their services gratuitously, and contributed much to the enjoyment of the public. The Council have also very liberally determined to open the gardens free every Wednesday during the months of September and October.

PURIFICATION OF WATER. — Mr. Alfred Bird, of Worcester Street, Birmingham, has recently patented a simple, inexpensive, and apparently efficient mode of divesting water taken from rivers, ponds, tanks, or wells of all impurities. The process has been suggested by the known affinity of hydrated alumina for organic matters; and the object is accomplished by the addition of one part ter-sulphate of aluminium in solution to seven thousand parts of the water—that is to say, twenty drops of the former to every gallon of the latter. As soon as the mixture takes place, a cloudy haze is seen in the water, which haze rapidly condenses into flocculi, with spaces of clear water between them. As the flocculi become more

dense, they rapidly descend to the bottom of the water, leaving it absolutely free from all organic colouring matter, as clear as crystal, and free from taint. The lime, which is in solution in the water as a carbonate, combines with the sulphuric acid of the ter-sulphate, and forms sulphate of lime. The liberated hydrate of alumina instantly attacks the organic matter, which it renders insoluble, and both rapidly descend to the bottom of the water, while the carbonic acid gas which remains in the water imparts to it a sparkling freshness. The time required for complete precipitation is from six to eight hours; so that, if the patent precipitant be added to it over-night, the water will be ready for use in the morning. Ten thousand gallons can as quickly be purified by this process as a single gallon. When the operation is performed in a large jug, decanter, or stone jar, the clear fluid thus obtained may be poured off, care being taken that the sediment is not disturbed; and from a cask, cistern, or other large vessel, it may be drawn by a tap furnished with a small piece of sponge or quantity of cotton wool to arrest any flocculi which may not have completely settled down. The patentee suggests that large bodies of water may be purified by the same means, openings being provided in reservoirs and tanks for the occasional removal of the sediment. The cost of the precipitant presents no obstacle to its use, as a quantity sufficient for thirty gallons of water costs only one penny. —(*Midland Counties Herald*.)

THE STORK A GARDENERS' FRIEND. — Gardeners have often useful auxiliaries, whose merit they do not appreciate, and we would particularise the stork as one. In a recent journey we saw one of these birds in the garden of M. Talabot, at Marseilles, where it constantly walks about like a policeman, looking after evil-doers in the borders, and giving no quarter to the insects, reptiles, moles, which it may come across. Thanks to its long and powerful beak, which the bird uses like a pickaxe, mice find him a terrible enemy, from whom they are not safe even in their subterranean retreats, for he has a fine scent, and with his pickaxe beak turns up the soil in search of them. We observed a similar thing at M. Leroy's, at Angers, where three storks act as a garden police from morning to night. They never go in-doors except in severe frosts, when they betake themselves to a sheltered place at night and during bad weather. As long as they can find anything to eat in the garden they do not require any food to be supplied to them; but when, in consequence of great drought or bad weather they cannot find enough there, they do not fail to show themselves at the kitchen. Having made a meal there they again return to the garden. It is curious to see how they run to the kitchen when fish is being prepared; however far off

they may be, they always come to claim their share. Along with the three storks is a gull, and the four always go in pairs, a male and female stork together, whilst the gull is the inseparable companion of the other stork.—(*Revue Horticole*.)

DESTROYING RED SPIDER ON ORCHIDS.—M. Denis, of the Botanic Garden at Lyons, boils a few stalks and fresh leaves of *Belladonna*, *Henbane*, *Pyrethrum*, and *Tobacco* in a close vessel for four or five minutes, allows the liquor to cool, but without taking off the cover, and next day about 9 A.M., he

gently syringes the leaves on both sides, taking care not to allow too much of the liquid to fall on the young growths, or if it do he reverses the plant that the liquid may run off. The process is repeated on three or four consecutive days, and in order to destroy the young which are hatched out from the eggs deposited in crevices the application is renewed after a time. When Orchids look yellow he syringes them for several days with water in which sulphate of iron has been dissolved at the rate of $13\frac{1}{2}$ grains to the pint, and they soon recover their green tint.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Stove.—During fine weather let the stove plants, intended to bloom in winter, be freely exposed; this will arrest their growth and induce them to bloom at the right time. Let all the plants be closely looked over for insects. **Orchids.**—Those kinds which have completed their season's growth should be removed to a cool, dry atmosphere, for which purpose a separate house should be appropriated; if not, spare vineries, or a cool, dry pit will suit some species, for a time at least. The progression to this stage of their culture must be gradual; to species still growing maintain a moist atmosphere—somewhat reduced, however, as the influence of light decreases; gradually withdraw the shading for the same reason.

GREENHOUSE.

Mixed Greenhouse.—This will now be gay with *Neriums*, scarlet *Pelargoniums*, Japan Lilies, Balsams, &c. Preparations must be made for receiving the regular plants towards the end of the month. Plants out of doors should now be fully exposed to the sun, to ripen the year's growth. Do not neglect specimen plants, but continue to stop and train the shoots as circumstances require. *Chrysanthemums* should be set thin, and well supplied with liquid manure; a few may be housed towards the end of the month for early blooming. **Camellias and Azaleas.**—Let the latter be frequently looked over in order to detect thrips, which may now make their appearance, and should be effectually eradicated before the plants are housed for the winter. Any plants which were not potted in the spring, and require shifting, may now be repotted, as the plants have made their growth; well soak the ball before potting, and be cautious, in watering them afterwards, that the water do not escape through the new soil and leave the mass of roots dry. **Cinerarias.**—For seedlings and propagated plants of the old kinds, the treatment should be about the same as last month. Repot into good rich soil such plants as are rooting freely to the sides of the small pots. Open the pits or frames night and morning for a time, to keep the

plants healthy. Should mildew appear, sulphur the leaves so affected on its first appearance, and fumigate if aphides are detected. **Pelargoniums.**—These should now be housed. It is a common failing to have them out of doors, or in cold damp pits too long, thus laying the foundation for the spot. Keep the plants hardy, however, by giving them plenty of air. The plants for the May exhibitions, or early bloom, should have their final repotting towards the end of the month. Stop early struck young plants by pinching a piece out of the point, and look well to young stock generally, as it requires much care and attention at this time. Too little growth is made generally before Christmas; the plants have to do in spring what they should have done in autumn, and are growing when they should be blooming. The consequence is, there is never a good head of bloom at any one time. Fancies require similar treatment, excepting that a little more warmth may be applied during their young state.

CONSERVATORY.

If possible keep only a few extra plants in this house for the next month, and make use of the time, by exposing the house as much as possible, to get the wood of the permanent inmates ripened off.

FORCING.

The earliest vineries and Peach-houses will now be fully exposed to the influence of the weather. Late Grapes will require to be kept dry, with abundance of air; fires may, however, be necessary to effect this occasionally, and nearly constantly in the case of Muscats. **Cucumbers and Melons.**—Cucumber-beds exhausted by long bearing, and from which fruit is yet required, should have a surfacing of rich compost, and a little additional bottom heat to swell off the remaining fruit. Late Melons must likewise be attended to, keeping the Vines thin, that the leaves may not shade each other; at this season they will require every ray of light to enable them to produce well-flavoured fruit. Keep up a steady bottom heat, and apply water only when necessary, graduating it in proportion to the decreasing

amount of light. Keep Cucumbers for winter supply hardy. *Pines*.—As the principal summer crop is over, the beds should be at once prepared for the reception of the ensuing season's crop. Previously, however, to placing the plants in the pits, let the house, heating apparatus, &c., be put in good order, as this cannot be well done after the plants are in. After repeated trials with compost, we still incline to pure loam, if of good quality. As the fruiting plants are placed in their permanent quarters, pot-on all the succession plants a stage, to fill up their places.

KITCHEN GARDEN.

This will be a busy month for the kitchen gardener. The winter and spring crops will require frequent hoeings in the intervals between the rows, and water occasionally in dry weather. As more ground comes to hand dig up immediately, and plant a further supply of Broccoli and Winter Greens; all will be useful in spring. On a warm rich soil, plant the first crop of spring Cabbage. Should the weather be dry, Cauliflowers, Lettuce, and Radishes, should be well soaked, to have them crisp and tender. Well water Celery, and remove the side suckers before earthing up; let the plants become strong before this is attempted. Take up Onions, and dry for storing, likewise Potatoes. Sow a plot more of Turnips, they will come in either for roots or leaves in spring. A small sowing of Cauliflower, Lettuce, Onions, Cabbage, Spinach, and Parsley, may be made for furnishing a late spring supply.

FRUIT GARDEN.

Hardy Fruits.—The summer wood of the wall and espalier trees will now be laid in. If time permit thin out likewise all the useless wood from Apple, Pear, and in fact every description of fruit tree. The advantage of this will consist in admitting more light and air to embryo fruit-buds, and furnishing them at the same time with a larger amount of nutrition. Protect wall fruit from wasps and flies.

FLOWER GARDEN.

In addition to the ordinary routine of cleaning, mowing, and dressing the beds, some of the earliest blooming annuals may now want removing, and their place should be filled up from the reserve stock, of which there should always be kept a sufficient supply in hand for these purposes. Trim in straggling growths, and remove decayed blooms, dead leaves, &c. The propagation of stock for next season's supply should now be proceeded with without delay.

FLORISTS' FLOWERS.

Auriculas.—These will only have to be kept clear of insects and dead foliage, and moderately moist to keep the young roots well at work. If premature trusses of flowers should appear, pinch the buds off when well above the foliage. *Carnations and Picotees*.—The soil for wintering these should be kept sweet and tolerably dry. Commence potting into

small pots towards the end of the month, to enable the plants to become well-established to stand the winter. Let them be well hardened off as soon as they have taken root. They are generally grown too tender. It will be better to err with a little too much exposure than to afford too much shelter on every occasion that the weather may prove unfavourable. Avoid wet, and give plenty of air; these are two of the most important points in the winter culture of the *Carnation* and *Picotee*. *Dahlias*.—If the disbudding and thinning of the shoots have been attended to, as previously directed, there will be but little to do this month but to attend to the bloom. Late plants will require another thinning. In shading for exhibition avoid the error too often committed of close-shading the blooms in a young state. Four or five days before the time they are required for exhibition is a sufficient time for many kinds at the commencement of the season, to be extended to eight or ten days as the season advances. Previous to shading, they should be securely tied, to prevent their being damaged by friction against the surrounding foliage. Many kinds take a much less time in blooming than others. This should be well attended to by the grower of flowers for exhibition. Soft-centered Dahlias take the shortest time in coming to perfection. Those that have a hard green centre when young, take the longest, and should be allowed more time in blooming. *Hollyhocks*.—Cuttings should be put in largely this month; they strike readily, and make excellent plants for another season. Seed should be gathered early, that the old flowering spike may be cut off to encourage the root to throw up cuttings. Sow seed as soon as ripe, and by transplanting the young plants, as soon as large enough, into small pots for wintering, they will flower well the next summer, thereby saving a season. *Pansies*.—Plant out beds for early spring blooming, and pot up what are required for flowering in pots towards the end of the month. Seedlings, as soon as large enough, should be planted out for blooming. Late-saved seed may be sown, but not later than the first week in the month. Cuttings may be put in at this time with a certainty of striking, if healthy. *Pinks*.—Prepare beds for planting out at the end of the month for blooming. The beds should be a little raised in the centre, to throw off the wet; plant about 6 inches apart. Rotten manure and common road sand should be mixed with the soil rather plentifully. Pot up a part of the stock—duplicates of the choice kinds—for wintering under glass, or to be sheltered, like Carnations during the winter. These, if planted out in well-prepared beds about the 1st of March, bloom both early and fine. *Tulips*.—Examine the bulbs occasionally; green fly sometimes attacks the points, and is easily checked if attended to in time. The soil in the beds for blooming them should be occasionally turned.



Dipladenia Amabilis

F. Waller lith. 18, Hatton Garden

DIPLADENIA AMABILIS.

WITH AN ILLUSTRATION.

THE gorgeous stove climber, which we now figure, was raised by Mr. Henry Tuke, gardener to R. Nicholls, Esq., of Bramley, near Leeds. A very fine specimen which was exhibited by Mr. Tuke at the Bradford August Show last year attracted a good deal of attention, and during the present year Messrs. Backhouse & Son, of York, into whose hands the stock has passed, and Messrs. Veitch & Sons, of Chelsea, have exhibited it in good condition at South Kensington, where it was rewarded by a first-class certificate.

We have to thank Mr. Dean, of Bradford Nursery, Shipley, for sending us the specimen from which our drawing was made, shortly after the exhibition of last year, to which we have referred.

It is with great pleasure that we publish a figure of so admirable a decorative plant, and one, too, which evinces the skill of the hybridiser, for *D. amabilis* is a hybrid production, and was obtained by Mr. Tuke as the result of a cross between *D. crassinoda* and *D. splendens*. The plant partakes somewhat of the habit of *D. crassinoda*, but it is of stronger growth, with larger foliage. The blossoms open of a pale blush pink, and gradually change to rose, until they finally attain to a richer and deeper hue than that of *D. crassinoda*. The lobes of the corolla are more rounded in form than in that plant, and the flowers, as will be seen from our illustration, are not only of large size, but of a very showy character; they are, moreover, very freely produced.

The cultivators of stove climbers are under deep obligations to Mr. Tuke for having originated so showy and free-blooming a plant, which is without doubt a decided acquisition, even in a family of which the species almost without exception occupy a front rank amongst the choicest ornaments of our stoves. It will require treatment similar to that given to the species already in cultivation.

M.

CONCERNING VEGETABLES.

I THANK Mr. Tillery for his excellent and suggestive paper under this heading, which appeared in last month's *FLORIST AND POMOLOGIST*. I trust Mr. Tillery will be good enough to contribute at intervals "a few observations" on this important topic, as, generally speaking, we are so much in the dark as to the true character of many of our kitchen garden plants.

I have grown this season the Holme Park Cos Lettuce. It is a dwarf-growing and hardy-looking variety, hearting well, and not apt to run to seed. It is a dark brown Cos, having a great deal of the character of the Florence Cos. I have, like many of the London people, a strong liking for white rather than brown Cos Lettuces, therefore, to my mind the Paris White Cos, if imported seed can be obtained, is the best of all summer Cos Lettuces.

The best summer Cabbage Lettuce is the Neapolitan; it is a green Malta, but hearts sooner, and the leaves are more fringed. The Longstander Cabbage Lettuce (sent out I think by Mr. Stephen Brown, of Sudbury), is a kind of small Hampton Court, but, being a summer variety, the foliage is green, and the leaves are tipped with a kind of purple. It is a good summer Cabbage Lettuce. Dickson's Hardy Winter Cabbage Lettuce is a good stock of a white Cabbage Lettuce, and is also a good summer variety, though recommended for winter work. It seems to be distinct enough to be classed as a variety, while its good qualities are the best recommendation for its being regarded as such. It is sent out by Messrs. F. & A. Dickson & Sons, of Chester. A short time ago I was

growing a Lettuce styled the Hardy Dutch, which I consider to be a first-class hardy Cabbage Lettuce, with large close heads, all heart; it is, indeed, very hardy, and I think if the stock can be preserved it will be found to be the best of all the hardy Cabbage Lettuces. It is in the hands of Messrs. Beck, Henderson, & Child, of London, and is not yet sent out.

There is a variety which finds its way into Covent Garden Market during the early spring months, known as the Hardy White Cos. It has all the characters of the Paris White Cos, but is much larger and hardier. It is much liked by the Covent Garden growers. As I have referred to a variety known as the Hampton Court, I may say that as a hardy winter Cabbage variety it ranks next to the Hardy Hammersmith. It grows to a great size, and forms a close heart of a light green colour.

I can confirm Mr. Tillery's statement in regard to Osborn's Winter White Broccoli, that it lacks hardiness—an indispensable quality in a winter Broccoli. I have not seen it growing in the south of England, but in the midland counties it was sadly cut up in the winter of 1864-65. Excessive wet, too, appears to be injurious to it. I am glad to find that Mr. Tillery has a word of praise for Dilcock's Bride. It is an excellent sort when it can be obtained true—*i.e.*, of the stock in the hands of the raiser, Mr. Dilcock, of York. There is, unfortunately, a spurious stock in the market, and the difficulty with growers of this variety is to know where it can be obtained true.

To Mr. Tillery's list of Peas let me add The Prince, a variety sent out by Messrs. Stuart & Mein, of Kelso. It is a very robust-growing variety, with a good branching habit, grows about $3\frac{1}{2}$ feet high, is a prolific bearer, and has very fine pods well filled with peas of a rich flavour. It can well be termed a "Marrow Pea for the main crop," as the pods hang well, and do not age so quickly as in the case of some sorts. It is a more prolific bearer than Veitch's Perfection. Maclean's Wonderful is another variety that can be highly recommended.

In all probability the early Pea controversy will be continued next season. An early Pea combining, it is said, all the qualities, is in the hands of a seed-grower in the neighbourhood of London, and will be sent out during the winter. I have seen a letter from a gentleman of standing in the horticultural body, residing in the north-west of England, stating that this new Pea was last season *ten days earlier* than First and Best, Ringleader, First Crop, Dillistone's, and the many others so zealously recommended in glowing testimonials.

E. W.

OUR PEAR CROPS.

I WAS rather surprised to learn from Mr. Edlington's account in last month's FLORIST AND POMOLOGIST that the Pear crop has been this year in Middlesex so complete a failure as stated; in this part of Yorkshire it is a very fair one, being nearly up to the average. Considering the very heavy crops of Pears last year, I think the yield this season very satisfactory. Jargonelles, of which great quantities are grown in this neighbourhood, have been selling as low as 2s. 6d. per stone of 16 lbs. There is a ready demand for them, so that nothing but the abundance of the crop has brought them so low in price. In seasons when the crop has been light, I have known them sell for 11s. and 12s. per stone. All other kinds of Pears are a fair crop. Some are fully equal to the average, and others rather below. Here we have full crops of the following on standard trees:—White Doyenné, Aston Town, Dunmore, Williams's Bon Chrétien, Beurré Diel, Beurré Bosc, Louise Bonne of Jersey, and Duchesse d'Angoulême. On the walls the following are fair crops:—Jargonelle, Brown

Beurré, Beurré Diel, Beurré de Rance, Easter Beurré, Swan's Egg, Gansel's Bergamot, Marie Louise (of which there is a number of trees), Vicar of Winkfield, Beurré Clairgeau, Crasanne, Glou Morceau, Van Mons Léon Leclerc, Joséphine de Malines, Winter Nelis, Hacon's Incomparable, and St. Germain.

Pears, like Apples, are rather smaller than usual, owing to the lateness and coldness of the season; but both are remarkably clean and free from spot, a result I attribute to the heavy rains we had at the beginning of June, just after the fruit was all set, and by which the trees were thoroughly cleansed and freed from insects.

Stourton.

M. SAUL.

SOME GOOD HYACINTHS.

THE good old plan of occasionally giving lists of the best varieties in the various sections of flowering plants that have obtained popularity has fallen into disuetude, to a certain extent, from some cause: probably it has been overlooked among the more weighty matters that engage the attention of the horticulturist. It is my purpose to return to it, in order to give a selection of Hyacinths for the guidance of those who will now be intending purchasers, and who will be desirous of obtaining only those varieties "worthy of cultivation." A list furnished about a year ago in the columns of the *Gardeners' Chronicle* contained several varieties of Hyacinths, &c., that can no longer be termed "leading varieties," as other sorts much superior to them can now be obtained at a reasonable cost, while they will repay in a much larger degree the time and trouble bestowed on their cultivation.

Commencing with Hyacinths, it must be admitted that there are but very few double varieties that can compare with the single flowers for beauty and effectiveness. The following are the best:—Lord Wellington, blush, extra fine; Noble par Mérite, deep rose, striped with carmine; Victoria Regina, pale rosy pink; La Tour d'Auvergne, pure white; Prince of Waterloo, clear white; Bloksberg, fine marbled blue; Laurens Koster, dark indigo blue; Othello, very dark blue; and Van Speyk, pale blue. There are two or three newer varieties of good qualities, but they are too high in price for general cultivation. I have omitted double yellows altogether, because there is not one among them worth notice.

The single varieties of Hyacinths are by far the best for general cultivation. The absurd prejudice in favour of double varieties that so long existed is gradually fading away now that the superior attractions of the single varieties are being recognised. A few of each shade of colour that are cheap and good are given in the accompanying list:—Duchess of Richmond, dark red; La Dame du Lac, pale rosy pink; Annie Lisle, fine bright crimson; Madame Hodgson, pale rose; Norma, delicate waxy pink; Princess Charlotte, delicate rosy pink; Robert Steiger, bright crimson; Sultan's Favourite, very pale rose; Alba Maxima, pure white; Emmeline, pale blush; Grand Vainqueur, pure white; Grandeur à Merveille, fine pale blush; Madame Van der Hoop, fine pure white; Mont Blanc, pure white; Tubiflora, blush; Voltaire, pale blush; Baron Van Tuyll, dark blue; Bleu Mourant, dark blue; Charles Dickens, greyish blue; Grand Lilas, delicate azure blue; Orondates, porcelain blue; Mimosa, purplish black; Prince Albert, glossy dark purple; Regulus, pale blue; Anna Carolina, primrose yellow; Heroine, canary yellow; and King of Holland, buff yellow.

If a selection be made from the foregoing list the sorts cannot fail to yield great satisfaction, as they have been grown for years past, and will hold their position for years to come.

The following hints may be of service to growers:—Choose moderate-sized in preference to very large bulbs, the latter sometimes throw two or three small spikes instead of one good one. Pot the bulbs in October, using a rich compost; soil cannot be too good for Hyacinths. Place the pots after planting in a sheltered position on pieces of slate or tiles to prevent the worms working into the pots, and cover the pots with sifted coal ashes to the depth of 4 inches for the space of two months. Remove the pots to a greenhouse, the inside of a window-ledge, or any suitable place for blooming them when ready for removal. Give plenty of water, and preserve the plants from cold draughts and frost.

The culture of the Hyacinth is a very simple process, a little intelligent attention is all that is required to ensure a good display of bloom.

G. W. R.

REMARKS ON FRUIT TREE CULTURE.—No. 13.

IN pursuance of my proposition to offer a few remarks on those particular points of culture in which the treatment required by one kind of fruit differs from that of another, although in many material points there are certain principles to guide practice which are common to all, I will take the Apricot next in order, for, although I have placed it next to the Peach, it is second to none; indeed, when we look at its general usefulness, both for dessert and confectionary purposes, we must award it a high position in the domestic economy.

The culture of the Apricot is peculiarly liable to be influenced by local circumstances. For example, in one locality the trees may be planted in the natural soil without any previous preparation or additional composts, where they will flourish and produce fruit abundantly, and live to a good old age; whilst in another locality it would appear that the greatest amount of preparation and attention fails to ensure a profitable return for the outlay. Now I do not consider that the soil is altogether at fault in this matter, but that there are other causes which act more powerfully against the well-doing of the trees than even an inferior or ill-prepared soil. To quote an instance bearing on the subject, I have known a gentleman in whose garden Apricots year after year signally failed to grow kindly or to bear even moderate crops, go to the expense of making a border in exact imitation of others in a distant locality where the trees flourished and bore abundant crops of fruit. His mode of procedure was unique of its kind. He first excavated the border in his own garden to the depth of 4 feet, and having drained it he carted from the favoured locality soil and subsoil to the required depth, and laid it down in his border in precisely the same order as it was placed in its natural state. Such energy deserved success; but I regret to say this did not follow, for the trees still refused to flourish, and I am inclined to think that the failure might in great part be attributed to the peculiar locality and atmospherical conditions which were very inimical to the well-doing of the Apricot in the early stages of growth. The locality was very high and very much exposed, the frosts in spring severe, and the average temperature of the spring months considerably lower than that of more sheltered localities lower down; moreover, the winds were often very strong, and frequently accompanied with cold rains, which beat against the walls with great violence.

Now, all these things are exceedingly adverse to the successful culture of the Apricot, and therefore to be avoided altogether, or means taken to guard against injurious effects by an efficient protection. I have no doubt if such a border had been formed where other conditions were more favourable, that abundant success might have followed; but, then, so also would it be the case

if an artificially-formed border had been laid down at one-fourth the expense, provided always that certain essential conditions, such as thorough drainage and a suitable compost, had been secured. It is just possible also that the great amount of knife-pruning, rendered necessary by the injurious effects of those peculiar atmospheric influences upon the wood, may have contributed its share, as the Apricot is rather impatient of severe knife work in winter, and this is another reason why a sheltered locality should be preferred, or efficient protection secured, because by careful management in the summer training very little knife-pruning would be necessary, certainly none that need be injurious.

Some trees once fell under my charge, which were very healthy and luxuriant, but would not carry the fruit to perfection, and both soil and locality were considered to be inimical to a fruitful growth, and I found that they had been systematically pruned in the winter, and that their free growth caused this to be done somewhat freely, which, with such trees, was, as I have before shown, only calculated to perpetuate the evil of a strong woody growth, which would not carry fruit. On examining the border I found it as I considered well and properly made, and carefully drained. I therefore merely removed the surface soil, which, having been kept well cropped, had driven the roots downwards instead of encouraging them to come upwards to the influence of the sun's rays, which is an essential element in securing fruitful growth; I then filled up the border with a compost of fresh loam and decayed vegetable matter. It was necessary to thin the wood out pretty freely the following winter, but afterwards by steady and persevering removal of superfluous growth, and careful summer and autumn pinching-back, the woody growth was kept in proper subjection, and very little use of the knife was necessary; and by following the same system out in succeeding years, a fruitful growth was produced which carried abundant crops to perfection, so much so, that in some seasons I took off in thinning from one tree considerably more than a hundred dozen of fruit; of course the trees were protected in spring, and a plentiful supply of water afforded, when necessary, at stoning-time.

In another instance I obtained a like success by entirely lifting very large trees—say 20 feet by 12, and replanting after making a new border. In both these cases the same effects were produced by nearly opposite practice. In the first the roots were influenced by manipulating the growth, and in the other the growth was checked through the necessary mutilation of the roots.

Redleaf.

JOHN COX.

ON THE SEEDING OF CONIFERS.—No. 1.

ARAUCARIA IMBRICATA.

Now that our harvest is over and secured (and altogether it has been a glorious, fruitful, and prosperous season with us)—now that the mornings begin to get dusky, I am about to make some remarks on the time which some Conifers take to perfect their seeds, for I never can find leisure for writing while the days are long and the sun shines.

Although the cones of *Araucaria imbricata* had been for several seasons remarkably fine here, it was not till within the last ten years that I was able to observe how long the seeds were in coming to perfection—that is to say, in becoming perfectly ripe. Since then, however, there has been an abundance of male catkins on the male trees. I may here make a digression to remark that the male and female trees of the *Araucaria imbricata* are distinct individuals. The male tree produces only male catkins, from 4 to 6 inches long when

full grown, and from 1 to 2 inches in diameter. When these catkins are ripe, on a dry day the immense quantity of sulphur-coloured pollen with which they are furnished is astonishing; and when a drying wind prevails and the sun is shining, the dust, or pollen, is wafted on the air, just as when a miller shakes a flour-bag. So beautiful are Nature's ways, that actually new catkins are to be seen and found on the male trees every day in the year. Thus, to make myself understood, there are new and old catkins, or catkins of various ages and sizes at all times to be seen on the male trees. We have here up to the present time eleven male trees, and only three that we have yet discovered to be female. The cones of the female are large and very noble, like large Pine Apples in size and shape, and if well fertilised by the pollen from the male catkins, they grow to a very large size. Those which are fertilised are very soon noticeable by their rapid increase in size. A fine cone will produce from a pint to a quart of perfect seed, as large and long as the first two joints of a man's little finger. The cones produced in April, 1866, will be ripe in October and November, 1867. The seeds on the summit of the cone are first ripe, and those at its base last. They are not very convenient for bipeds, birds, squirrels, or mice to gather; but when they are ripe all seem to be on the watch to catch them up as they fall. All the birds of the woodpecker and titmouse families, squirrels, and mice, are gourmands in respect to the plump and delicious-flavoured seeds.

Bicton.

JAMES BARNES.

GEISSOMERIA LONGIFLORA.

THIS is a very useful and very handsome winter-flowering decorative plant. It is easily increased by cuttings planted in the usual way and placed in a gentle bottom heat. It is a softwooded free-growing plant; but has a tendency to grow tall, and does not branch freely when stopped back. To have good-sized specimens three or four young plants should be put into one pot.

Young healthy plants struck in the preceding summer and well established in small pots, should be selected early in spring and potted three or four in a pot. When they have made some growth stop all the shoots, and when they have broken afresh shift the plants into good-sized pots, and keep them growing on all the summer in an ordinary stove temperature. They will flower in December and January, and remain a long time in bloom. Small plants are sometimes very useful for in-door decoration, and a number should be always grown for this purpose.

Stourton.

M. SAUL.

ON THE STRONG SHOOTS OF FRUIT TREES.

THE "fore shoots" of wall trees are often of more vigorous growth than those close to the wall. In winter-pruning the rank wood is cut off except that which is required to fill up blanks, and perhaps with little thought as to how the shoots grew so strong. A writer, however, in these pages, maintains, like many others, that their strength is the effect of the "great amount of sap sent down in readiness for the future development of the strong and vigorous wood." This may accord with the old theory of the descent of sap in autumn into the roots of trees, but not with the fact that the roots contain less sap in winter than in summer, nor with that of the tops being stored with torpid elaborated sap in winter. It is true, however, that the growth of the shoots depends much on the state of the roots, the increase of the fibres of which is affected more or less by the health of the trees during the previous season. Still, the

crude juice collected by the fibres does not produce growth until it has passed through the leaves, therefore the first growth of trees in spring depends more on the sap stored up in the branches than on that in the roots; and regarding the rank growth of the shoots, much depends on their position, or how they are exposed to the influence of the sun. This may be seen by the vigorous shoots of fruit trees trained in the open ground, whose shoots and leaves are more exposed to the light than those of the same age when trained to a wall. The same applies, also, to strong shoots of the previous year's growth, which become weak when shaded by older branches. For instance, one-year-old shoots of Pear trees trained between old branches soon sicken and die, instead of bearing fruit; consequently, when that plan is adopted with barren trees the young shoots should have as much room as possible in order that their leaves may be exposed to the influence of the sun.

I may have said enough to show that strong shoots of trees may be rendered weak without any interference with the roots, and I have no wish at present to enter into the various plans adopted to check the rank growth of trees in order to make these fruitful, but rather to notice how weak ones may be made strong. This can be done by leaving some of their shoots not nailed to the wall during summer, in order that the sun may have more influence on the leaves. At the end of the season such shoots may be double the size of the others close to the wall, owing to the greater abundance of sap elaborated in their leaves, which has also increased the growth of the roots or fibres. This accords with the theory of there being a nearly equal balance between the growth of the tops and roots of trees. If there be any doubts respecting the sap not being stored in the roots during winter, one has only to put a piece of root and also a branch in the fire, and perhaps double the quantity of juice will ooze out at the other end of the branch than there will from the root. This I have noticed before in these pages; but I may have said too little above concerning the objection to leaving rank shoots in trees, whether they be shortened to fill up blanks, or left at their full length. It is true that vigorous shoots are apt to produce rank wood instead of fruit; but it is also true this may be prevented by leaving more of their offshoots close to the wall during summer, exactly the reverse of what has been recommended for weak trees. Perhaps there would be fewer complaints about the roots of trees if the theory of vegetation were better understood.

Cossey Park.

J. WIGHTON.

LATE-FLOWERING ROSES.

DESPITE so much wet weather, so many dull, cold, and wet days—sure signs that the summer has passed, and prophetic of the coming death of so much that has been gay and beautiful; despite these, yet have many of the late-flowering Roses compensated to some extent for the dreariness that has begun to close about us and them. Wild winds, and pelting rains, and beclouded skies have assailed the Roses with great severity, and presented to them no inviting aspect of countenance, yet have many of them put forth their flowers, and gilded the dreariness they could not avert.

I walked through Mr. W. Paul's nursery, at Waltham Cross, a few days ago. There was to be seen a great breadth of standard and dwarf Roses then in bloom, numbers of them not having thin attenuated flowers, but large, full, rich blossoms with all that desired quality sometimes looked for in vain at the end of June. I thought that a selection of some of those that may truly be termed autumnal-flowering Roses might prove acceptable to the readers of the *FLORIST AND POMOLOGIST*. Before giving the list, however, I may state that invariably

—probably always, the varieties that flower well in the autumn are of strong and vigorous habit, and that they looked capable of standing much in the way of inclement and boisterous weather before they would succumb to it; therefore, for cold and exposed situations should such hardy constitutions be selected. Another consideration presented itself to my mind—Do not some of these stout and vigorous-growing kinds reserve, as it were, some of their very best flowers for the autumn months? It did appear to my observation as if some severity of weather, if not indispensable to, at least helps, the production of blooms of remarkable quality in several instances. Among my own Roses are plants of Duc de Rohan, Madame Caillat, Jean Goujon, and others, standing in a very exposed situation, torn and bruised by violent west winds, yet yielding about the middle of September exquisite flowers, full, clean, and high-coloured, when the bedding stuff about and beneath them has been robbed of all its colour and attractiveness. On the other hand, a very few weakly-growing varieties in my soil have not given me a single bloom for some time past. The following constitute the list to which I have referred:—Madame Emile Boyau, soft rosy flesh, changing to blush, large and full. Elizabeth Vigneron, rosy pink, a very free bloomer; a Rose that will be better appreciated by-and-by. Prince de Joinville, a free-blooming dark variety; a good autumnal-flowering kind, well adapted for climbing. Black Prince, a very fine dark Rose, flowers large and full. Prince Eugène Beauharnais, build of Général Jacqueminot, but having more scarlet in its colour. Lady Suffield, a fine free-blooming Rose, with purplish crimson flowers. Madame Elise Vilmorin, rich rosy crimson, very fine. Triomphe des Français, maroon shaded with dark crimson; a fine dark flower. Achille Gonod, carmine red, flowers large and very full, fine shade; a good late-blooming variety. Madame André Leroy, a pleasing shade of rose; very hardy. Captain Rognat, good hardy free habit, colour rosy crimson, good full flowers. Baronne de Maynard, pure white, free-blooming; a good autumnal Rose. Madame Boutin, a good late bloomer, flowers large and full. Dr. Andry, crimson purple, large and full flowers. Baptiste Desportes, colour pale rosy purple, very smooth petals. George Prince, a full and globular flower, colour bright crimson; a strong and free hardy Rose. Sénateur Favre, purple; a good full Rose, plenty of substance, and good habit. Vainqueur de Goliath, Triomphe de Caen, Madame Victor Verdier, Princess of Wales, and Glory of Waltham, the last a splendid pillar Rose, were very fine indeed. A large bank of the last-named close to the railway was a very attractive sight.

Quo.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

September 4th.—Mr. Bull's great plant of *Amaryllis Josephinae*, with fifty-two flowers, was the sensation of the meeting. It was certainly an extraordinary specimen. Two smaller plants of *A. Griffinii*, very much like the preceding, were also shown. A first-class certificate was awarded to Messrs. Downie, Laird, & Laing for *Alternanthera paronychoides*, a very pretty and dwarf-growing variety, which will make a capital edging plant. The same award was made to Messrs. Osborn & Son for *Statice Frostii*, a garden hybrid, having a profusion of light purple and white flowers. It will be a good exhibition variety. From Mr. Kinghorn came some beautiful varieties of *Lobelia fulgens*. Some of the colours were very bright and deep; some were delicate pale shades. I have seen beds of *L. fulgens* very effective during the summer months, and some of these varieties would have a very pleasing aspect. Messrs. Veitch & Sons had several interesting things, among them *Coleus Gibsoni*, foliage bright green, changing to a darker shade with age, veined and splashed

with a dull dark crimson; a collection of Asters, which shall have a special notice by-and-by; other new plants were also produced by this firm. Messrs. E. G. Henderson & Son had a very handsome tricolor variegated Pelargonium, named *Sophia Dumaresque*, to which a first-class certificate was awarded. It was regarded as an improvement on *Sunset*. From the same source came a very good variety named *Golden Ray*; but as so many new kinds are now being produced, the Committee grant certificates very sparingly indeed. From Mr. Cunningham, of Burton-on-Trent, came a variety of the Ivy-leaved Pelargonium, named *L'Elegante*, to which a first-class certificate was awarded. The leaves are distinctly edged with a creamy white, and the flowers are of a pale lilac colour. A collection of cut spikes of Gladioli was shown by Mr. Standish, of Ascot, and included the following, some of which were truly fine:—*Paul Bedford*, *Rajah*, *Samuel Weymouth*, *Cymbeline*, *The Ensign*, *Carminata*, *Prime Minister*, *Rev. J. Dix*, *Isa Craig*, and *J. W. Lane*, all shades of scarlet and crimson; and *Peter Simple*, *Lemonade*, and *Seraph*, light varieties. Some of the very best of the light flowers were much feathered on the spikes, which detracts materially from their value as exhibition varieties. Mr. Mann, of Brentwood, had a good variety of tricolor-leaved Pelargonium *Melona*, to which a first-class certificate was awarded, and a bright scarlet Zonale variety named *Mimas*, to which was awarded a second-class certificate. To Mr. George, of Stamford Hill, was awarded a first-class certificate for *Tropæolum compactum* *King of Scarlets*, in the style of *Lobbianum elegans*, of very free habit, and producing a profusion of bright orange scarlet flowers, shaded with crimson. A double Fuchsia, named *King of the Doubles*, came from Mr. Cannell, of Woolwich, having flowers of a great size. Mr. Keynes, of Salisbury, was awarded a first-class certificate for *Dahlia Paradise Williams*, a deep maroon crimson flower of fine form; and to the same were awarded second-class certificates for *Dahlias Gazelle*, a large violet-shaded bronzy crimson; *Vice-President*, a bright amber-coloured variety; and *Harriet Tetterell*, a light ground variety, heavily tipped and flushed with purplish crimson. A first-class certificate was awarded to Mr. Eckford, The Gardens, Coleshill, for *Verbena Coleshill*, intense scarlet, with lemon eye, pips large and very showy; and the following varieties were also shown by Mr. Eckford:—*Umpire*, cerise crimson, large lemon eye, pips very large, good truss; Mr. Varney, deep plum purple; *Triumph*, deep rosy cerise, shaded with crimson, large white eye; *William Dobbs*, dull crimson purple; and *Wee Davie*, rosy crimson with white eye, small pips.

At the meeting of the Fruit Committee were produced some Potatoes from Mr. Craddock, of Warwick:—viz., *Alston Kidney*, a large-sized good-looking white kind, and *Melbourne Seedling*, another Kidney, a good deal like the *Alston*, but stated not to be so productive. From Mr. Short, of Heckfield Gardens, came examples of *Red Astrachan Apples* and *Siberian Crabs*. Messrs. Veitch & Sons sent a collection of Onions, comprising *Nuneham Park*, *Reading*, *White Spanish*, *Lisbon*, *Welsh*, *Blood Red*, *Silver-skinned*, *White Nocera*, *Trebons*, *Danver's Yellow*, *Strasburgh*, *White Globe*, *Brown Globe*, and *James's Keeping*.

September 18th.—At this meeting Mr. Turner produced a basketful of his beautiful new Nosegay Pelargonium *Lady Constance Grosvenor*, having numerous fine trusses of very bright orange-scarlet flowers. From the gardens of the Society came plants of *Lantanas*, *Zonale Pelargoniums*, *Petunias*, and some Orchids, among them a very handsome specimen of *Odontoglossum grande*. A first-class certificate was awarded to Mr. W. Cruikshanks, The Gardens, Langleybury, Watford, for a very pretty striped *Verbena*, named *Lady of Langleybury*. The flowers were lilac and white, the colours being very well defined.

It was said to be a seedling from Purple King. Mr. Turner had some seedling Dahlias, to the following of which second-class certificates were awarded:—Lord Lyon, crimson, heavily edged with purple, a very telling show flower; Valentine, pale lilac, tipped with rosy purple; and Flambeau, one of the most distinct and striking flowers ever seen, ground colour pale orange, heavily tipped with fiery crimson, a good show flower; another seedling was Starlight, yellow ground, slightly tipped with crimson maroon. Of older kinds, Mr. Turner had excellent blooms of Artemus Ward, Fair Imogene, very delicate; Leah, Charlotte Dorling, very fine; Arrah-na-Pogne, Master of Arts, Le Domino Noir, Freemason, Lord Derby, Epaulette, Purity, and Peeress. From Mr. Rawlings, of Bethnal Green, came Aurora, a veined rosy lilac flower, to which a second-class certificate was awarded, and John Sladden, a dark crimson flower of medium size. Mr. Pope, of Chelsea, had Mrs. Pope, delicate ground colour, edged with rosy purple, a little open at the centre, but promising to be much better, and Mirella, light yellow. Mr. Collier, of Bethnal Green, had Salmon King, pale salmon on a yellowish ground. Mr. Bragg, of Slough, had Warner, large, dark scarlet; Commodore, salmon scarlet, veined; and Mrs. Gerald Wellesley, light ground, heavily edged with rosy purple, awarded a second-class certificate; also Garibaldi, a large and coarse pale orange flower, veined with orange scarlet. While noticing the flowers shown by Mr. Pope, I omitted to notice Gem, a Fancy variety, to which a first-class certificate was awarded; it is a crimson ground flower, edged with white, small, but very pretty. Second-class certificates were awarded to Mr. Burgess, of Chelsea, for Mrs. Burgess, a sort of violet-shaded crimson, a flower difficult to describe, and to Mr. G. Wheeler, of Warminster, for Vanguard, maroon, tinged in the centre with violet. Mr. Eckford, of Coleshill Gardens, had some seedling Verbenas and Dahlias, but there was nothing worthy of notice among them. Mr. Mann, of Brentwood, had some tricolor-leaved Pelargoniums of very good qualities; and from Mr. Anderson, of Meadow Bank, Glasgow, came cut flowers of various Orchids.

Some bunches of Grapes from the Society's gardens were produced at the meeting of the Fruit Committee—viz., Frankenthal, Black, Dutch, and Mill Hill Hamburgs, and Buckland Sweetwater. Messrs. W. Cutbush & Son exhibited specimens of Nuneham Park and White Spanish Onions, grown at Nuneham Park, the latter being very much smaller than the new variety; and from Messrs. J. Wrench & Sons, London Bridge, came examples of the following sorts of Onions—Rocca, a pale form of the Flat Tripoli from Naples, Santa Anna, and St. Jorge, two varieties from Madeira, similar in character to the globular form of the Large Madeira, and red and deep red forms of the Italian Tripoli.

R. D.

HOLME PARK LETTUCE.

YOUR correspondent "E. W." (page 173), asks for information regarding this Lettuce. It has been grown here for several years, and is much esteemed as a summer variety. The Holme Park and Paris White Cos are the only two Cos Lettuces that I grow for summer supply. They are both excellent in every respect, being large, crisp, sweet, and not requiring to be tied up; but of the two the Holme Park stands the longer in dry weather before running to seed. This property, I need scarcely say, renders it a very valuable sort for such a season of drought as we have experienced here this summer. On the 7th of June a quantity of the two varieties named was planted on ridges between Celery trenches; and the Holme Park is now (August 9th), in excellent order for use, having large solid white hearts, while a great many plants

of the Paris White Cos have run to seed—not prematurely, but have not remained in a useful condition so long as the Holme Park. For light dry soils I consider the Holme Park Lettuce a great acquisition.

Archerfield.

D. THOMSON.

BEDDING PELARGONIUMS.

THE summer that is now rapidly waning, if it has not already departed, has, owing to so much wet weather recently, severely tested the capabilities of the new varieties in standing the effects of such ungenial conditions. Of Mr. Paul's varieties of the Nosegay section, the following have withstood the weather in a very successful manner:—Rebecca, very free-blooming, large, handsome trusses; Donald Beaton; Lord Chancellor, salmon pink, with light centre; Cardinal, dark orange scarlet; Indian Yellow; Nimrod, fine orange scarlet; Waltham Nosegay, upper segments scarlet, the lower magenta, very free-blooming and effective; Orange Nosegay; Sir J. Paxton, the nearest approach to a true orange colour yet sent out, a very striking variety; Prince of Lichtenstein; Tiara, scarlet crimson suffused with purple, very distinct and fine, a splendid bedding kind; St. George, a glorious shade of colour, somewhat difficult to describe; and Phoenix, fiery scarlet, a very telling shade of colour. The beds of the kinds just mentioned presented a marked contrast to those of some of the older kinds of bedding Pelargoniums, as, in the case of the latter, not only had the colour of the trusses been washed away, but their power to produce other trusses appeared exhausted. The above-mentioned varieties are already sent out.

Of new kinds not yet sent out, but which Mr. Paul will distribute next season, Dr. Hogg promises to be a remarkably good flower. Although it is thought by some to be too much like Amy Hogg, it is distinctly deeper in colour when the two are compared. The colour is a compound of red and blue, and may be termed a bluish red. It has more blue in the colour than Amy Hogg, but less red. It is a very free-blooming kind. Another, Enchantress, has a very desirable close habit, colour rich deep magenta, the upper petals bright deep scarlet, very free-blooming, and extra fine. Village Maid is a deep rosy pink, with a fine white centre, a beautiful shade of colour, the white being separated in a very distinct manner from the pink; it is of good close habit and a free-bloomer. Blue Bell is a sort of bluish deep rose, habit dwarf and very free.

Quo.

ON POTATOES.

THE visitor to the Royal Horticultural Society's Saturday Show of the 22nd of September would doubtless observe a collection of upwards of sixty varieties of Potatoes from the neighbourhood of Southampton, and the bulk of them most excellent samples. Now the first question which he would naturally ask would be, "What is the use of so many varieties?"—and it would be very difficult to give a better answer than this: That growing such collections offers a good opportunity for making a selection of the most useful and desirable kinds. The Potato, however, has this peculiarity, that according to the character of the soil and situation the variety which proves to be the best in one place is possibly the worst in another; and if the sixty sorts shown at Kensington could be distributed to twenty different districts, and reports were made as to their qualities, we should, most probably, find that each would be pronounced the best for some particular locality. In this way it may be shown that there

is sound reason in growing or trying a large number of varieties; moreover, the Potato is not so perfect but that there is even yet ample room for improvement. We want varieties still earlier if possible, and heavier croppers; flavour will bear improving, the shape even of the best is far from handsome, but as far as size is concerned they are generally speaking quite large enough to be good.

In looking over the collection above referred to, the eye is struck with the size of some of the sorts shown, such as Scotch Regent, Farmer's Glory, Irish White, and others; but these, distasteful as they may appear to the eye of a connoisseur, are, nevertheless, great favourites among the poorer classes, because of their great productiveness, which is to them an important consideration. All varieties, however, are not like those, and if we would look further for others more to our taste we shall find in the Ash-leaf Kidney, Early Handsworth, Early Emperor, Scotch Blue, Fenn's Onwards, Daintree's Kidney, Birmingham Prizetaker, and Dawe's Matchless, varieties that for shape and quality might charm an epicure. There was one pleasing feature about this collection of Potatoes—not only was every sort distinctly named, but the special qualities of each as developed in the locality in which it was grown, both as to produce, rotation, and also as to cooking were given. It would occupy too large a portion of this article to give a *résumé* of this, but should they remain for some time on exhibition it would be well if those who take an interest in Potatoes would pay them a visit and draw therefrom their own conclusions.

It would afford an exceedingly interesting study if samples of every known variety in cultivation could be obtained by some central body, and grown in a well-selected portion of land, and then reported upon publicly by some properly qualified judges. There can be no doubt but that their decision would be of great service to growers in all parts of the country, although, probably, no one would be found to accept it as final; but there can be no doubt that such a public report would have as much interest for many as the reports already issued by the Royal Horticultural Society upon the bedding Pelargoniums at Chiswick.

ANNO.

RHODODENDRONS.

THIS year's bloom of Rhododendrons suggests a few remarks which may be of interest to some of our readers. It is now rather a long lookback to the flowering season of this favourite shrub; but as what we have got to say respects its planting and protection, our hints cannot be deemed out of date. We may premise that the display of blossoms, particularly in later situations, was extremely fine. In many places, however, a considerable portion of the flower-buds of the early varieties was destroyed, or materially injured, by the lingering frosts of April and May. It unfortunately happens, that a few degrees of frost prove injurious to the flowers of Rhododendrons, not only when they are fully developed, but almost as soon as the flower-buds begin to expand.

Why should not the early varieties be protected from frost? A florist does not grudge the expense of a frame for his Auriculas, or a canvas awning for his Tulips. In most catalogues, it is true, certain early Rhododendrons are set down as specially adapted for conservatories—an excellent hint for those who possess such structures, and have room in them for such plants; but with the exception, perhaps, of *R. arboreum*, we seldom see Rhododendrons planted out in the soil which forms the floor of a conservatory. Ordinary hybrids are grown in pots or tubs; and they are not often well grown, for as soon as they have flowered, they are hurried away to the back of a wall, or some shady

place, where a minimum of watering is required, and where accordingly they do not form fine foliage or strong flower-buds. Early Rhododendrons, if cultivated at all, must generally be grown in the open air. Mr. John Waterer, indeed, who is a great authority on this subject, is of opinion that they should not be so cultivated, and he strongly "advises gentlemen on no account to introduce into their clumps tender or early blooming kinds." Of course, the late bloomers are to be preferred for the general collection, and it is a happy thing that we have so many brilliant varieties of that character. But we should hesitate to lop off a whole month from the beginning of the Rhododendron season, and that at the very time that they are most wanted. We should be sorry to miss the bright scarlet or crimson blossoms of Nobleanum, or of other vernal sorts, from our spring bouquets. It is true that we sometimes see the brilliant trusses of these varieties encrusted with snow, and still more frequently we find their half-opened buds blighted by the black frosts of March and April. Well, let it be so, if it must be so; but they not unfrequently escape, like the charming *R. dauricum atrovirens*, which sometimes blooms as early as Christmas, and takes any opportunity of fresh weather to put in its appearance, and which, though often destroyed, is about the last shrub we should spare from our gardens. Early Rhododendrons, however, need not be destroyed by frosts. They may be effectually protected by light airy tents of tiffany or canvas. Suppose a well-selected group of these sorts to be planted in a sunny, sheltered corner of the flower garden—in a figure, let us say, of an elongated hexagonal or octagonal shape; posts, some 6 feet high, might be erected at the angles, with a few taller ones in the centre; and on these a roof and side curtains might be suspended, the latter to be drawn aside in fair weather and sunshine. A clever gardener would have no difficulty in realising this suggestion. The posts might be covered by creeping plants in summer, and with a little ingenuity these out-of-doors extemporised conservatories, might easily be made to harmonise with the permanent glazed structures set apart for the culture of plants.

This suggestion implies the grouping of the various sorts of Rhododendrons according to their periods of flowering. It would be a waste of space to put under canvas any that do not require protection. The principle of grouping we are disposed to advocate for another reason, which is well understood in the autumnal flower garden. The only means of securing a compact array of blossoms is to plant together the varieties which bloom about the same time. The effect of a mass is greatly marred by the presence of plants, some of which have done flowering, while others have not expanded their flower-buds. It would be easy, by noting the dates of the flowering of the most desirable sorts—as is partially done in Mr. Standish's excellent catalogue—to throw them into three, four, or five groups, according to the convenience of the place, or the magnitude of the collection. The following attempt at grouping will illustrate our meaning; only we beg that it may not be taken as exhaustive, many fine sorts being omitted, nor as professedly accurate, for we write chiefly from memory, aided by the above-mentioned catalogue, which does not include all the sorts named. In passing, we may express a wish that the Rhododendron nurserymen would follow Mr. Standish's example in giving the dates of flowering, and that they would imitate the catholicity of the Rose-growers, who enumerate all good varieties whether raised or introduced by themselves or not.

Early Group.—Altaclerense, Russellianum, Nobleanum several varieties, Gloire de Gand, Cinnamomum Cunninghamii, Sun of Austerlitz, Limbatum, Sir Walter Scott, Broughtoni, Prince Camille de Rohan, &c.

Medium Group.—Alarm, Album elegans, Atrosanguineum, Barclayanum, Blandyanum, Brayanum, Bysianum, Coriaceum, Countess of Wilton, Currie-

anum, Delicatissimum (particularly Veitch's), Everestianum, Fastuosum, Gem, Genseric, Iago, Lady Eleanor Cathcart, Lady Godiva, Ingramii, Mooreanum, Mrs. Loudon, Nelsoni, Nero, Paxtoni, Perspicuum, Schiller, Victoria, Zuleika, &c.

Late Group.—Butlerianum, Candidissimum, Celebrandum, Chianoides, Colonel, Comtesse de Morella, Concessum, La Vivandière, Maculatum, Nigrum superbum, Marguérite, Minnie, Macranthum, Mr. John Waterer, Mrs. John Waterer, Mrs. Standish, Standish's Perfection, Star of England, Leopardi, &c.

The above may be recommended as a selection for a beginner. It contains few or none of the fine new high-priced varieties. Of course, one fairly inspired with the love of Rhododendrons will not content himself with these; and he will speedily discover that the second and third groups may be greatly increased. The white or light-coloured varieties in the late group are so exquisitely fine, that it is difficult to speak of them with moderation. They will match the finest Camellias any day. We may add, that in the second week of last July, we saw some fine trusses of *Maculatum nigrum superbum*, in a cool shaded situation, and that circumstance, supposing that *Nobleanum* flowered about the 1st of April, as it no doubt did in many parts of the country, marks off a period of three months and a half for the Rhododendron season of 1866.

Our observations this year have convinced us of the great superiority of soil largely composed of peat earth for the growth of Rhododendrons. It is usual for nurserymen to affirm that this shrub will grow well enough in any light soil of a loose or sandy texture. Most of their nurseries are of this description; and it is natural for them to maintain that what is sufficient for propagation is good for growth. It is true that Rhododendrons will grow, in a way, in any light soil containing abundance of vegetable matter as one of its elements. There is, however, all the difference in the world between plants that barely live after a stunted precarious fashion, and plants that grow like Willows, and are covered annually with immense showers of blossom. Amateurs who can procure peat earth are strongly recommended to avail themselves of it. If they reside near a railway, they will probably have little difficulty in obtaining—say five or six truckloads of it, which may be equal to twenty or twenty-five cartloads. Let them chop it small, or break it well with a coarse rake, but not screen it. Let them add an equal quantity of well-rotted leaf mould, free from sticks, with a sufficiency of sharp sand. That will give from sixty to seventy cartloads of compost to begin with. If the original soil of the garden is clayey or chalky it should be excavated to the depth of 12, 15, or 18 inches, as the grower can afford it, and a layer of the compost put in its place. It is often injurious to mix up any of the old soil. After the Rhododendrons have been planted they will be benefited by a strong mulching from a decayed hotbed; and the process may be repeated with good effects for several years.—(*Gardeners' Chronicle.*)

ON CAULIFLOWERS.

I AM quite of the same opinion as Mr. Tillery, that there is no better Cauliflower, for summer and autumn use, than the Walcheren, if true. I am also of opinion that it is very difficult to obtain true from the seedsmen. The late Mr. Foster, of Benningborough (the raiser of Lady Downe's and Foster's White Seedling Grapes), had the best strain of the Walcheren that I have seen. I believe he got it many years ago from Mr. Legge. He always took the greatest pains to keep it true. My neighbour, Mr. Cooper, Lady Cooke's

gardener, at Green Hammerton, obtained it from Mr. Foster, and I got it from him some years ago. I have taken great care to keep it true, and should much regret losing it. In fine seasons the seed ripens well with us; but in cold, bad, late seasons it does not. It is very easy to tell it from all other Cauliflowers in its young state. It comes, as we say in Yorkshire, as "blue as a whetstone." In growth it is more dwarf and compact than any of the other Cauliflowers, so much so, that it is sometimes mistaken by the inexperienced for Cabbage.

I have now growing on a long border four sorts of Cauliflowers, which I have been cutting for the last few weeks. They are the London, Asiatic, Erfurt, and Walcheren. The last is in every respect very much superior to the others. The heads are all compact, firm, and nicely shaped, and as white as snowballs. Some of the others "buttoned," or the heads have been badly shaped and quite yellow before they were large enough for use.

By planting out a batch of Walcheren plants once a fortnight from the beginning of March to the end of July, I have generally an abundance of fine Cauliflowers from about the second week in June to the beginning of February. When the frosts are very severe in the autumn, they will kill the plants that furnish the early winter supply; but it is not often that the frosts are so severe as to kill them all, especially if a good breadth (as there always ought to be), has been planted in July. By taking a little pains in tying up the leaves in frosty weather until the heads are formed, and then removing them to a frame or pit, or hanging them up in an open airy shed, they will keep good for several weeks.

For the early supply in June I make two sowings in the previous August, one about the 10th of the month and the other about the 25th. If the season be a fine one, the plants from the late sowing will in general do best; but if the season be unfavourable the plants from the early sowings will be preferable. As I save my own seed, and generally have plenty of it, I sow several beds, so that I have a great choice of plants and some to spare. I plant a few out under hand-glasses towards the end of October; but of late years I have not planted a great many in this way, as, to do them justice, they require much attention during the winter and spring months in giving air at all times when the weather is favourable, and in covering and protecting them when it is frosty. Instead of planting a quantity under glasses for the early supply, towards the end of October I have a great number potted into 60's or thumb pots, and place them in a frame or pit near to the glass. As long as the weather is mild the lights are left off; but in frosty weather they are always put on, and if very severe a mat is thrown over them. Any common garden soil will do to pot the plants in at first. Towards the end of November they will be found to have made nice roots; they should then be shifted into 48-sized pots, mixing this time a little very rotten manure among the soil. When all are potted I return them to the frame or pit if the weather be still mild; but if very frosty I have them put into a cold vinery. If the soil be in a nice state when they are potted, and no fire heat is required to keep out the frost, they will not require much water during the short dark days of winter. I give them air at all favourable opportunities. Towards the end of January I again shift the whole of them, putting the largest plants into 24, and the smallest into 32-sized pots, and mixing a third of rotten manure among the soil at this potting. I put them back into the cold vinery, where they remain until the middle or latter part of February; if the weather be then mild I have them put into a cold pit or frame to harden off before they are planted out. Unless the weather be very mild I give very little air for a few days after they are placed in the pit. After they have been a week or ten days in the pit I give

more air, and if the weather be favourable I increase it liberally, so that about the first or second week in March the plants are able to bear full exposure to the weather if not very frosty. I then have the whole of them planted on a warm sheltered border, and protect the plants with some Spruce Fir or Laurel branches for a few days; but as soon as the weather is favourable these are entirely removed. If the weather be dry the plants are well watered; and having good roots they soon commence growing rapidly. I find this plan much more satisfactory than planting under glass.

I also have a quantity of plants pricked out into frames in October for transplanting into the open quarters in spring. These plants come in for use in July after the early ones are done. I also protect during the winter the small plants left in the seed-beds. These make good plants for putting out in April and the early part of May; if true Walcheren they very rarely "button," and they are better plants than any raised in heat for early planting. Small sowings made in March, April, and May will furnish plants for the different transplantings until July. By always sowing plenty of seed and having an abundance of plants, and by frequently planting out on every bit of ground I can get a plant into, I generally have plenty of good Cauliflowers from June to February.

Stourton.

M. SAUL.

THE FRUIT-ROOM.

AMONGST the various appendages to a garden an efficient fruit-room is certainly not the least important, yet such a room we seldom see. Generally some back shed is fitted up with shelves in a very rough manner, and on these the winter Apples and Pears are laid more or less thickly, as the crop may have been. In too many instances they are obliged to be laid too thickly for their keeping well; as they are likely to be all wanted, there is no alternative but to place them so, if the space be too limited for their being kept more thinly. Although we all know that good-keeping fruit will remain sound a considerable time, even when subjected to this treatment, there is no doubt but it would keep much longer if allowed more room from the first, and those instances in which fruits have been kept for long periods will be found to be where plenty of space has been accorded; some other conditions seem necessary for the well-keeping of fruit, and it will be advisable to point out a few of these individually.

Whatever may be the reputation of a certain variety of fruit for keeping-purposes, there is no question but its merits that way are influenced by the situation in which it is grown, as well as the period at which it is gathered, and the condition of the atmosphere at the time. By way of exemplifying these conditions it will be as well to take a very common case to point them out, and though there may be some difference of opinion on the habits and qualification of the variety given as an example, there is certainly none that has a wider reputation. I, therefore, by way of pointing out the conditions necessary to enable a fruit to keep for as long a period as possible in a sound condition, will take the Ribston Pippin Apple as an example, not on account of its long-keeping capabilities—on the contrary, it is only an indifferent one in that respect; but by it we may learn the laws that govern other fruits as well.

No one who has visited a fruit-room in September, when there is a quantity of fruit all ripening into that mellow condition which betokens perfection, but must have been struck by the odour which is emitted from them. This odour, it is needless to say, must be as hurtful to the well-keeping of fruits as anything can be—say, for instance, a quantity of Williams's Bon Chrétien Pear all ripen-

ng at once into the condition fit for table, and in a day or two all will be in a stage beyond this, and become a mass of juice which it is difficult to handle without bursting them. Now, I always look on a mass of this kind as the most dangerous to a fruit-room; and as all early fruits ripen in warmer weather than other kinds do, they ought to be furnished with a degree of ventilation almost amounting to complete exposure, in order that the odour emitted by ripening fruit, which very quickly takes a decaying turn, may not contaminate the rest. Fruit at that time ought also to be kept thin. But to return to the Ribston Pippins. It often happens that these have to be gathered when the fruit-room is more or less occupied by fruits in the condition spoken of; and if the weather be warm at the time, the fruit is impelled onward to a condition fit for table much earlier than they otherwise would be if kept cooler; and what is, perhaps, as bad, the infectious character of the atmosphere they are in hastens on decay some time before ripeness or mellowness has done its part: hence fruits that ought to be in perfection in January are ready by the end of November, not Ribston Pippin Apples only, but all other kinds of fruits as well. This is one of the reasons why fruits in certain seasons keep longer and better than they do in others—the simple fact that they are not ready to gather until cold weather insures their keeping, as more fruit generally perishes in November than in December and January, and no amount of mere cleanliness and care in removing diseased fruit can compensate for the crowded condition of the fruit-room in the early autumn months, when the weather at the same time is of a kind that favours “forcing,” which it certainly does when it is warm at the periods spoken of.

Now, as the Ribston Pippin cannot be preserved under circumstances as described, let us suppose an opposite case—a backward unkindly season like that of 1860, when there was no lack of fruits generally; the fine autumn of the year before securing sufficient bloom, but the multitude of fruits only resulted in each being very small, and the unfavourable season did not mature them with that degree of perfection so requisite in good fruit: hence we had a quantity of half-perfected fruits, presenting little but a thick tough skin, and a core quite as large as usual. Some of these fruits possibly might keep longer than was ever known before; as they contained so little saccharine matter, there was scarcely anything within them to engender decay: hence a sort of withering or shrivelling-up instead of the usual spot and rot which consume the better class of fruits.

From the above it will be seen that warmth favours decay, and that cold encourages preservation by retarding the natural ripening of the fruit, and when it has approached that condition it tends to keep it from advancing further. But this unnatural state of things has its disadvantages. Fruit so treated is never good. Pears may be kept in an ice-house to a period much beyond that of their usual keeping time; but the flavour is gone. The same may be said of summer fruits, as Strawberries, Peaches, and the like, which have been so tried frequently.

Whenever a quantity of fruit is piled up in a heap it begins what in common language is called “to sweat.” This sweating brings out an oily substance to the outside. Sweating will also occur without the fruit being so closely piled up as spoken of, but it is more slow; and if it be laid thinly on a shelf it is in its most legitimate way. This sweating coats the skin with a sort of varnish, which resists the action of the atmosphere, and certainly promotes the keeping qualities of the fruit. This varnish ought not to be removed by any means, handling being one of the certain ways to do so. Let the fruit, therefore, be placed at first singly on the shelves, and little else will be wanted but looking over them and picking out decayed ones; and the

place being kept cool and well ventilated, there is a tolerable certainty of their keeping well, other things also being favourable.

As every one is agreed that perfect cleanliness and sweetness are indispensable requisites in a fruit-room, the situation ought to be so chosen as to insure these as far as external circumstances will do so, but a full southern exposure is not good. The best fruit-room I ever remember to have seen was at Knowsley, the princely seat of the Earl of Derby, the internal fittings being so good; broad shelves surrounded the building, and in the centre there was a tier of shelves with drawers in the bottom compartment, the whole affording ample space to get round, and the shelves were not too crowded. The means for ventilation were ample. Some other useful fruit-rooms that I have seen are lean-to's against the north wall of a garden, the great defect in these being the want of ventilation, which, in part at least, ought to be at top, and is rarely thought of in a lean-to shed. The sides being low, the exhalations from the fruit cannot well be all carried off; it is better, therefore, to leave an opening at top to allow them to escape, otherwise the fact of being behind a wall is an advantage rather than otherwise, and more so if it be isolated, and not form part of a series of buildings, as by that means end ventilation could be more easily accomplished. I have also seen a very useful fruit-room half underground; but this is only advisable on a dry, gravelly, or sandy soil. I have also seen one under the shade of a tree, not in a dense wood, which is bad, and it answered very well. The main thing to stipulate for is plenty of space and ventilation, and to use the latter on all occasions, except, perhaps, in damp, warm weather, and the probability is that fruit will keep as long as it is required to do.

R.

OUR CONTEMPORARIES.

THE BOTANICAL MAGAZINE for August and September contains representations of the following plants:—

Kleinia fulgens.—A small succulent plant sent from Port Natal by Mr. Plant to W. Wilson Saunders, Esq. It grows about 2 or 3 feet high in this country, and produces vermilion orange heads on peduncles from 4 to 8 inches long.

Fremontia californica.—A Malvaceous shrub, discovered by Col. Fremont in 1846, whilst on an expedition to the Rocky Mountains, and of which some particulars were given at page 155. The first plant in Europe was in possession of the Royal Horticultural Society, but this was disposed of to Messrs. E. G. Henderson, and subsequently died; but the species was re-imported by Messrs. Veitch, and flowered with them in June. "It is," says Dr. Hooker, "undoubtedly the choicest early-flowering shrub introduced of late years, and more than rivals the Forsythias in many respects." It is a woody shrub, attaining a height of 10 feet in its native country, and resembling a Fig tree. The flowers are produced in abundance, are $2\frac{1}{2}$ inches in diameter, and of a bright golden yellow colour.

Fernandesia robusta.—An Orchid originally discovered in Guatemala by G. U. Skinner, Esq., and reintroduced by Mr. Salvin. The flowers are borne on drooping peduncles, supported by upright stems a foot in height, and are bright yellow, barred and spotted on the lip with red. It is by no means showy.

Sempervivum Paivæ.—A species of Houseleek discovered in Gomera, one of the Canary Islands, by the Rev. R. T. Lowe. It forms a low, straggling shrub, with a short erect stem, and long, weak, slender, crooked branches,

from 1 to 2 feet in length. The leaves are from 1 to $2\frac{1}{2}$ inches long, and from half an inch to 1 inch broad, and very glaucous. The flowers are large, green, white towards the base of the petals. The plant is only of interest as a species hitherto undescribed.

Sanchezia nobilis.—A beautiful Acanthaceous plant, discovered by Mr. Pearce, Messrs. Veitch's collector, in Ecuador. It is a stout, erect, herbaceous plant, with oblong obovate leaves, from 3 to 9 inches long, and dense panicles of yellow flowers, with bright red bracts $1\frac{1}{2}$ inch in length, the corolla cylindrical, 2 inches in length, by one-third of an inch in diameter.

Saccolabium ampullaceum.—Figured in Lindley's "Sertum Orchidaceum," in 1838, as well as Paxton's "Magazine of Botany." It is a native of Sylhet, where the plant, which does not attain more than 6 inches in height, freely produces its deep rose-coloured racemes in spring.

Rhododendron Fortunei.—A beautiful species discovered by Mr. Fortune in the province of Chekiang in China, at an altitude of 3000 feet. Seeds of it were sent home by him, and plants of it were raised by Mr. Glendinning at the Chiswick Nursery, where they proved perfectly hardy, and from these the species was described by Dr. Lindley. It forms a stout shrub, with bright green leaves from 5 to 7 inches long, and pale rose-coloured flowers from 3 to $3\frac{1}{2}$ inches in diameter, in heads of eight to ten.

Ilex latifolia (Broad-leaved Japanese Holly).—"This noble Holly," says Dr. Hooker, "though often supposed to be one of the later importations from Japan, has long been cultivated in the Royal Gardens, where it has stood without protection, trained against a wall for many years, and quite uninjured. In the open air I have not observed it flowering, but it flowers abundantly in the temperate-house during June and July. In other places near London and elsewhere it is cultivated as a standard; and though I have never seen it luxuriant under such circumstances in the east of England, it no doubt succeeds perfectly in the west. It is a beautiful shrub, of a paler green than the common Holly, with similar berries, and the flowers are produced in round heads of a pale yellow colour."

Huntleya cerina.—A beautiful Orchid, originally discovered by Warszewicz in Veragua, on the volcano of Chiriqui, at an elevation of 8000 feet, and first flowered by Mr. Rucker. It has also flowered with J. Bateman, Esq., at Knypersley, and at Messrs. Veitch's. The plant is a bulbless epiphyte, producing tufts of leaves about a foot long. The flowers have pale straw-coloured petals and sepals, $1\frac{1}{2}$ inch long, and a yellow lip.

Nierembergia Veitchii.—An elegant species, introduced by Messrs. Veitch, from Tucuman. It grows about 8 inches or a foot high, and has pale lilac campanulate flowers.

Kæmpferia Roscaana.—A native of Burmah, where it was discovered by Dr. Wallich in 1826, and flowered three years afterwards at Chiswick. It is remarkable for producing only a single pair of leaves; but in these the beauty of the plant consists. They are 4 or 5 inches long, orbicular, of leathery texture, and of an opaque green, mottled or prettily zoned with paler green. Between them small white flowers are produced, but only one at a time.

OUR MONTHLY CHRONICLE.

CRYSTAL PALACE SHOW.—This took place on the 5th and 6th of September, and though Roses, Dahlias, and Hollyhocks were numerous and well shown, there was a great falling off in the fruit, both as regards quantity and quality. Out-door fruit is generally small this year, and it has been remarked that in many places varieties come so much out of character that it is difficult to distinguish them. Accordingly, many growers who

usually exhibit at this Show, did not put in an appearance, and the competition was principally confined to those enjoying favourable climates in the southern parts of the country. We transfer, with some abridgement, from "The Journal of Horticulture," the following particulars as to the subjects exhibited:—

Of Fruit only two collections were shown: that from Mr. T. Dawson, gardener to Earl Cowper, Panshanger, to which the first prize was awarded, consisted of a Black Prince Pine Apple, good bunches of Barbarossa and Muscat Grapes, a Green-fleshed Melon, fine Violette Hâtive Peaches, Elruge Nectarines, and Florence Cherries. Mr. Donald, gardener to J. G. Barclay, Esq., Leyton, was second with a Queen Pine, Black Hamburg and Muscat Grapes, Scarlet Perfection Melon, Peaches, Nectarines, Cherries, and Pears.

Pine Apples were not numerous nor remarkable for quality; there were, however, a few good Queens. For three fruits, Mr. Dawson was first with Smooth-leaved Cayenne, Providence, and Black Prince; and Mr. Chilman, gardener, to the Earl of Normanton, Ringwood, second with a Queen and two Smooth-leaved Cayennes. Mr. Page, gardener to W. Leaf, Esq., Streatham, exhibited two of the latter, weighing 5 lbs. each, and Charlotte Rothschild, 4 lbs.; and Mr. Wallis, gardener to J. Dixon, Esq., Astle Park, Providence, Enville, and Brown Sugar-loaf. A well-ripened Queen from Mr. R. Smee, gardener to W. H. Stone, Esq., M.P., Dulwich, was first in the class for that variety; Mr. Elstone, gardener to S. Lawrence, Esq., Clapham Park, being second with a fruit of 4 lbs. 6 ozs.; and Mr. R. Craik, gardener to G. Soames, Esq., was third. In the class for any variety, Mr. J. Douglas, gardener to F. Whitbourne, Esq., Ilford, was first, and Mr. Page second, with Smooth-leaved Cayenne; and Mr. Douglas also took the third prize with Charlotte Rothschild, weight 5 lbs.

There was not nearly so fine an exhibition of Grapes as might have been expected, though several very excellent bunches were shown. The Black Hamburgs from Mr. Meredith, of Garston, which took the first prize in the class for Black kinds, were, as usual, remarkably fine, the bunches being very large, and the berries large and finely coloured. Mr. Osborne, Kay's Nursery, Finchley, who was second, had also very fine bunches, though not so even as Mr. Meredith's in the size of the berries. Equal third prizes were awarded to Mr. R. Norris, gardener to A. Bosanquet, Esq., Southgate, for Black Hamburg, and to Mr. Devenish Rodwell, Weymouth, for fine but somewhat loose bunches of the Muscat Hamburg, weighing 10 lbs. 1 oz. These were all three on the same rod, and it was a matter of surprise that three such bunches should have been produced within so short a distance of each other. Of White Grapes, the best were beautifully

ripened Canon Hall Muscats from J. Hollingworth, Esq. Mr. Irving, gardener to the Duke of Hamilton, was second with good well-ripened bunches of Buckland Sweetwater; and Mr. Osborne, Finchley, and Mr. Bailey, gardener to T. T. Drake, Esq., Shardeloes, were equal third for Muscats. The heaviest bunch of any kind was a very fine one (weight not stated), of Black Hamburg, not, however, quite perfect as regards colour, shown by Mr. Osborne; and a bunch of the same kind, weighing upwards of 4 lbs., from Mr. Irving, was second. There were several good baskets of 12 lbs. and upwards, mostly consisting of Black Hamburg. Mr. R. Norris, gardener to A. Bosanquet, Esq., was first, and Mr. Osborne, Finchley, second with that kind, and equal third prizes were awarded to Mr. W. Toomer, gardener to J. Perrett, Esq., Herne Hill, for Muscats, small in berry but well ripened, and to Mr. T. Frost, Maidstone, for Black Hamburg.

Peaches and Nectarines were all rather small though well coloured. The former chiefly consisted of Grosse Mignonne, Royal George, Royal Charlotte, Noblesse, Barrington, Violette Hâtive, and Bellegarde. Mr. Thorneycroft, Floore, Weedon, was first; Mr. Crane, gardener to the Rev. L. Deedes, second, with Royal Charlotte; and Mr. Hazell, Denmark Hill, third, with Grosse Mignonne. Some good fruit of Royal George, grown in pots in an unheated orchard-house, came from Mr. Douglas, gardener to F. Whitbourne, Esq. For Nectarines, Mr. King, gardener to G. Roder, Esq., Slaughtam, was first with a good dish of Violette Hâtive; Mr. Sutherland, gardener to Mrs. Jamieson, Fulham, second with the same variety; and Mr. Dawson, third with Downton. Some finely-coloured fruit of Rivers's Orange, from orchard-house trees, were shown by G. F. Wilson, Esq., Weybridge. Elruge, Roman, Pitmaston Orange, Murrey, and one or two other varieties were also fairly represented.

Melons were shown to the number of three score. The best Green-fleshed was Preston Hall Hybrid from Mr. Frost, Maidstone; Mr. Samuel, Broom Park, Betchworth, was second; and Mr. Chilman third. Of the Scarlet-fleshed varieties Scarlet Gem had the pre-eminence, Mr. Stacey, gardener to E. Rayment, Esq., Norwood, being first with it; Mr. Bailey, second; and Dr. Cooper, Slough, third.

Figs were not numerous shown, but very good. The best were very fine Brunswick and Brown Turkey, from Mr. Dennis, gardener to H. Hayward, Esq., Folkington; next came Black Ischia and Brunswick, from Mr. Samuel, Betchworth. Mr. Turner, of Slough, was third; Mr. Lacey, gardener to C. S. Mortimore, Esq., Morden Park, fourth.

Plums were tolerably numerous, but scarcely so good as in former years. R. Webb, Esq., of Reading, was first with excellent dishes of

White Magnum Bonum, Goliath, and Coe's Golden Drop. Mr. Bailey was second with Victoria, Washington, and Prince of Wales; and Mr. Shoebridge, gardener to E. C. Goad, Esq., Carshalton, third, with Goliath, Jefferson, and Washington. Mr. Gilbert, Stoke, Slough, had a fourth prize for the first and last, and Pond's Seedling. Excellent orchard-house fruit of Transparent Gage, Coe's Golden Drop, and Reine Claude de Bavay, came from Mr. Wilson, Weybridge.

Of dessert Apples the best four dishes were Red Pearmain, Red Astrachan, Col. Vaughan, and Reinette du Laak, from Messrs. Lane, St. Mary's Cray; Mr. Gilbert, Stoke, was second with Bishop's Pippin, Devonshire Quarrenden, Cox's Orange Pippin, and a red-streaked seedling; Mr. Webb, Reading, third, with Red Astrachan, Scarlet Nonpareil, Ribston and Cox's Orange Pippins; and Mr. Beester, Goring, Sussex, fourth, with Fearn's Pippin, Red Astrachan, Bull's Golden Reinette, and Cellini. Among other kinds we noticed Early Strawberry, pretty, but not of much value as regards flavour, Kerry Pippin, Ashmead's Kernel, King of the Pippins, Pearson's Plate, Early Red Margaret, and Irish Peach. The first prize for kitchen Apples was taken by Mr. Willmore, Hoyle Place, with good examples of Alexander, Red Astrachan, Blenheim and Stone's Pippins. Mr. Mortimore was second with a kind called Putt's Pudding, Cellini, Lord Derby, and Lord Suffield. Messrs. Lane, St. Mary's Cray, were third, and Messrs. Gadd, Dorking, fourth.

The best three dishes of Pears were exhibited by Mr. Gilbert, of Stoke, Slough, who had good examples of Williams's Bon Chrétien, Louise Bonne of Jersey, and Duchesse d'Angoulême. Mr. Harrison, Oatlands Palace Gardens, had fine dishes of the two last-named kinds and Beurré Clairgeau; Mr. Richbell, gardener to — Heathcote, Esq., Epsom, good Beurré Diel and Beurré Clairgeau; and Mr. Bonner, gardener to the Rev. J. Cooper, Woking, Gansel's Bergamot, Duchesse d'Angoulême, and Marie Louise. The prize for the heaviest dish of twelve was awarded to Mr. Gadd, gardener to J. Jaffray, Esq., for Uvedale's St. Germain, weighing 10 lbs. 4 ozs. G. F. Wilson, Esq., was second with one of Maréchal de la Cour, weighing 8 lbs. 4 ozs., and Mr. O. Goldsmith third. Pears shown for flavour consisted almost exclusively of Williams's Bon Chrétien and Jargonelle. The second and third prizes were awarded to the former kind shown by Mr. Grover, of Hammersmith, and Mr. Fraser, of Lea Bridge, whilst the first went to a variety unnamed, exhibited by Mr. Thorneycroft.

Mr. Toomer, gardener to J. Perrett, Esq., Herne Hill, exhibited a Black Hamburg Vine bearing splendid bunches. Messrs. Lane & Sons and Mr. Hope, gardener to W. Murrell, Esq., also exhibited beautifully fruited specimens, and some good pot Vines, though

of smaller size, came from Mr. Geirs, Norwood. Vines, Pear, Apple, and Plum trees in pots, were shown by Mr. Fraser, together with excellent dishes of ripe fruit from pot trees; and pot Plum and Peach trees came also from Mr. Vertigan, Clapham Common. Mr. Webb, of Reading, furnished twenty kinds of Filberts, among which were several of his own raising, and Mr. Kemp, gardener to E. Bentall, Esq., a cluster of Musa Cavendishii, on a stem upwards of a foot in diameter, which had been an unrooted sucker but fourteen months ago. Mr. Sage, gardener to Earl Brownlow, likewise exhibited a cluster of the same Banana. A good dish of Victoria Red Currant came from Mr. Vertigan, Clapham, also one of Sir Charles Napier Strawberry. From Messrs. Barr & Sugden came a collection of Onions; and from Messrs. Cutbush very fine bulbs of the Nuneham Park Onion, all of which were said to weigh at least 1 lb. each, and one as much as 24½ ozs. The same firm also contributed dishes of their Giant Kidney Bean, which, though the pods were large, was crisp and succulent.

In the floral department of the Show, the stands of Dahlias were numerous, and the blooms for the most part excellent. In the class for forty-eight, Mr. Keynes, of Salisbury, was first with fine blooms of Golden Admiration, King of Sweden, Matilda, Queen of Primroses, Delicata, Edward Spary, Baron Taunton, Lord Shaftesbury, Chairman, James Backhouse, Miss Henshaw, Flossy Girl, George White, Leah, Paradise Williams, Mrs. Wyndham, Andrew Dodds, Umpire, John Wyatt, Charlotte Dorling, Annie Austin, Disraeli, Anna Keynes, British Triumph, Lady of the Lake, Freemason, Lady Mary Wilde, Golden Gem, Jenny Austin, &c. Mr. Walker, of Thame, was second, the third prize going to Mr. Kimberley, of Coventry, and the fourth to Mr. Morse, of Epsom.

For twenty-four blooms Mr. Keynes was again first with excellent examples of Queen of Primroses, Lady of the Lake, Chairman, James Backhouse, Lord Derby, Charlotte Dorling, Lady Gladys Herbert, Golden Admiration, Bob Ridley, Norfolk Hero, Earl of Pembroke, Anna Keynes, George Wheeler, &c. Mr. Draycott, Humberstone, Leicester, was second; Mr. Legge, Edmonton, third; Mr. Thame, fourth; and Mr. C. Kimberley, fifth.

In the Amateurs' class for the same number, Mr. C. J. Perry, Castle Bromwich, was first with fine blooms of Chairman, Arthur, Phidias, Anna Keynes, Andrew Dodds, Master of Arts, Messenger, Lady G. Herbert, Lord Derby, Alexandra, Hugh Miller, George Brown, British Triumph, Juno, Criterion, Charlotte Dorling, Pauline, &c. Mr. Thorneycroft, Floore, Weedon, was second; Mr. Hopkins, Brentford, third; Mr. Hedge, Colchester, fourth; Mr. Glasscock, Bishop Stortford, fifth; and Mr. Cottis, Newhall, Chelmsford, sixth.

In the class for twelve blooms, the best stand came from Mr. Thorneycroft, the varieties being Lord Palmerston, Volunteer, Fanny Purchase, seedling, Lord Derby, Model, International, Willie Austin, Juno, Miss Henshaw, British Triumph, and Matilda Keynes. Mr. Glasscock was second with Goldfinder, Fanny Purchase, Bird of Passage, Delicata, Lord Derby, Mrs. Belton, &c. Mr. Lakins, Shooters Hill, was third; Mr. Hopkins, fourth; Mr. Hedge, fifth; and Mr. J. C. Perry, sixth.

Of the Fancy varieties the stands were not very numerous. The best twelve blooms in the Nurserymen's class came from Mr. Keynes, and consisted of Chang, Formidable, Regularity, Lightning, Octoroon, President Lincoln, Remarkable, Lord Warden, Messenger, Butterfly, John Salter, and Ebor. In the corresponding class for Amateurs Mr. Perry occupied a similar position with John Bunn, Sam Bartlett, Queen Mab, Octoroon, Pauline, Triomphe de Roubaix, Regularity, and Artemus Ward. Mr. Thorneycroft was second, and Mr. Petfield, gardener to G. Thornhill, Esq., Diddington, third.

A good number of seedlings were exhibited. First-class certificates were awarded to Mr. Keynes, for Paradise Williams and for Princess of Wales, delicate lilac with white centre, tipped with violet; Vice-President, golden yellow; and Butterfly, reddish orange, received second-class certificates. Mr. Petfield, had a similar award for a pleasing flower, white, tipped with purplish lilac; also, Mr. Pope, of Chelsea, for Pope's Gem. Mr. Burgess had likewise a second-class certificate for Mrs. Burgess, violet crimson, tipped with brighter crimson. Vanguard and Bijou from Mr. Wheeler, of Warminster, were also awarded second-class certificates.

The best stands both of German and French Asters, came from Mr. Stanford, gardener to J. Thomasset, Esq., Walthamstow, and contained blooms of remarkable size and beauty.

Besides twelve boxes of beautiful cut blooms of Roses, furnished by Mr. William Paul, wonderfully fine for the season, he exhibited fine specimens of Amy Hogg and other Nosegay Pelargoniums, as well as dwarf standard plants of Mrs. Pollock, and some other variegated kinds. A collection of variegated shrubs and Ivies, likewise from the Waltham Cross Nurseries, attracted considerable attention. Mr. Turner, Slough, received first-class certificates for Nosegay Pelargoniums Duchess of Sutherland and Lady Constance Grosvenor, a fine orange scarlet; and Mr. C. J. Perry, one of the second-class for Shirley Hibberd, rosy scarlet.

In the class for twenty-four single blooms of Roses Mr. Keynes was first, and in the class for thirty-six the positions of the exhibitors were reversed.

In the class for eighteen blooms, Mr. Hollingworth, of Maidstone, was first, and Mr. Hedge, Reed Hall, Colchester, second.

We must not omit the magnificent box of Maréchal Niel contributed by Mr. Keynes, and a smaller though more highly coloured one by Messrs. Paul & Son. That this is a magnificent and free-blooming Rose does not admit of a doubt.

Some fine Gladioli were exhibited by Messrs. Kelway, of Langport, Messrs. G. Paul & Son, and Mr. Prince. Mr. Ingle was the only contributor amongst amateurs.

The Rev. E. Hawke, Willingham Rectory, was as usual first in Hollyhocks, his flowers both in twenty-four and twelve, were remarkably fine, and comprised Charmer, Acme, Hercules, Invincible, George Young, George Keith, Lilac Perfection, Orange Perfection, Mr. J. B. Ullett, Willingham Defiance, W. Dean, Senior Wrangler, Fair Ellen, Prince, Countess of Craven, Amber Queen, and a number of seedlings. The incessant rain must have been very much against these flowers, but they were shown remarkably clear and good.

In Verbenas Mr. Perry was the only exhibitor whose flowers were worth looking at. He sustained his usual high character as the prince of cultivators in this class of flowers.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—The autumn Show was held in the Music Hall and Assembly Rooms on the 5th and 6th of September, and proved a great success, though the subjects exhibited were scarcely so numerous as at the great Show of last year. Pines were remarkably fine, especially the Queens from Mr. Fowles and Mr. Peacock, Castle Dykes, and the Smooth-leaved Cayennes from Mr. Munro, of Liverpool. A plant of the Hurst House shown by Mr. Fowler, Castle Kennedy, was bearing a fruit swelling off, which could not weigh less than 8 lbs. Grapes, though not quite so numerous as last year, were even better as regards quality. Mr. Fowler was the only exhibitor in the class for single bunches of eight sorts, his kinds being Black Hamburg, 1½ lb. weight; Morocco, 2 lbs.; Black Prince, 3½ lbs.; Muscat Hamburg, 4 lbs.; Trebbiano, 4 lbs.; Muscat of Alexandria, 3 lbs.; Golden Hamburg, 1½ lb.; and Duchess of Buccleuch, 3½ lbs. The last-named variety measured no less than 16 inches long by 13 inches across. For four kinds Mr. Meredith, of Garston, was first with Black Hamburg, finely coloured, and Trebbiano, Aramon, and Muscat of Alexandria. The heaviest three bunches came from Mr. Fowler, who had White Nice, weighing 10 lbs., and measuring 23 inches across and 20 inches long; Muscat Hamburg, measuring 16 inches by 13, and of the extraordinary weight of 6 lbs.; and Trebbiano, weighing 6 lbs. The heaviest bunch of White Grapes also came from Mr. Fowler, being White Nice, in weight 10½ lbs. The Black Hamburgs shown by Mr. Meredith in the class for two bunches of that variety, were superb; and those from Mr. Hill, of Keele Hall, were

also fine. The first and second prizes for the best-flavoured White Grape were both taken by Duchess of Buccleuch, although in competition with the Muscat of Alexandria; and the best-flavoured Black proved to be Muscat Hamburgh, which took all the prizes in that colour. The principal prize in the competition was that for a collection of twenty sorts of fruit; and it was taken by Mr. Thomson, of Dalkeith, with fine Queen and Smooth-leaved Cayenne Pines, Melons, excellent dishes of Grapes, Currants, Gooseberries, Peaches, Nectarines, Apricots, Plums, Cherries, Apples, and Pears. Mr. Temple, Balbirnie, took a similar position in the class for collections of sixteen sorts. Some very good Peaches and Nectarines were shown; and among seedlings was a new Plum of first-rate quality shown by Mr. Webster, gardener to the Duke of Richmond, Gordon Castle.

Of Heaths and fine-foliaged plants there was also a good exhibition; and the Holly-

hocks and Gladioli from Messrs. Downie, Laird, & Laing were very fine.

OBITUARY.

JOHN JACKSON BLANDY, Esq., for many years a member of the Council of the Royal Horticultural Society, and latterly one of its Vice-Presidents, died at his residence at Highgrove, near Reading, on the 2nd of September, aged 72. Mr. Blandy was strongly attached to horticulture, and was ever active in endeavouring to promote its interests. When the International Horticultural Exhibition of May last was set on foot he gave in his adhesion to the project at an early stage, and acted as the Deputy Chairman of its Executive Committee.

DR. GEORGE METTENIUS, a celebrated pteridologist and Professor of Botany in the Leipsig University, was carried off by cholera on the 18th of August, in the forty-third year of his age.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Stove.—If previous directions have been acted upon, the stock of young plants which we have recommended to be grown for winter flowering will now be nice bushy stuff, and will include various *Justicias*, *Aphelandras*, *Eranthemums*, *Euphorbia splendens*, *Gesneras*, and *Allamandas*. These should now be placed in the stove, and will in a few weeks commence blooming, and continue doing so throughout the winter. *Orchids.*—The principal part of the stock will now be at rest. A few *Lælias*, *Cattleyas*, &c., which bloom at this season, should be kept in dry places, moderately warm, to prolong their beauty. Keep the East Indian species, which rarely cease growing for any length of time, in an atmosphere moderately humid, reducing the night temperature a few degrees. As some kinds put early to rest will show bloom at this season, they may be removed to a moister heat to bring them on, and be afterwards placed in the driest part of the house to bloom.

GREENHOUSE.

Mixed Greenhouse.—The whole of the plants which have been standing out during the summer should at once be put into the house. To make room for a time a portion may be placed in a spare pit or frame, till the *Liliums*, &c., have done blooming, when more room can be allowed them. Let the plants, pots, and soil be well cleaned before taking them in. Leave a little air on at night to keep the plants hardy. *Camellias and Azaleas.*—These should be placed in their winter quarters forthwith, if not already done. Let the drainage of the pots be examined before they are taken in, the pots clean-washed, and the surface soil loosened, adding a little fresh compost

when necessary. If the buds on the *Camellias* are too thickly set, thin them out to regular distances, 3 or 4 inches apart. Let the *Azaleas* be looked over, and any plants infested with thrips should be put into a close room or pit, and fumigated two or three times with tobacco, allowing them two days' respite between each dose. Well syringe afterwards, and arrange them in their winter quarters. *Cinerarias.*—Mildew is often troublesome at this season; dust the parts affected with sulphur as soon as it appears, whether the plants be seedlings or named varieties. Those for exhibition, or to decorate the home stage, will require a shift this month, using light rich soil. A cool pit or frame near the glass is the best situation for *Cinerarias* during the autumn months, removing them to a pit or low greenhouse that has the means of keeping out frost when winter fairly sets in. *Pelargoniums.*—Keep the house dry and well aired, but not too cold; the stock will suffer if the houses are allowed to become cold and damp. Repot, stop, &c., as recommended last month. The plants should be encouraged to make good growth during October and November, but should rest during December. Neither large plants nor young stock should be crowded together, which is too often the case.

CONSERVATORY.

Let the climbers on the roof and other parts of the house be now gone over, cutting away any useless shoots which have done blooming; the remainder may be tied in a little closer, to admit more light to the plants beneath. Plants growing in the open borders should likewise be gone over, pruning in any straggling growths. Large specimen plants, and Orange trees which have been placed out of

doors for the summer, should now be brought in. Let the tubs, pots, &c., be well cleaned before this is done, and the drainage looked to. When finished, the whole of the inside borders and paths should be thoroughly cleaned. Give air in abundance in mild weather.

FORCING.

The period during which the forcing-houses have been at rest will have been employed in putting them in good repair, and seeing that the heating apparatus is in working order. The first house, of both Vines and Peaches, may be pruned at once. The sashes may be put on the early vinery towards the end of the month, if very early Grapes are wanted. Keep late Grapes dry, by giving air night and day, putting on a little fire when the days are wet, to dry up damp. Vines and fruit trees in pots should now be placed to winter behind a north wall. *Cucumbers and Melons.*—Any late Melons still left to ripen should be encouraged by a little fire heat or the application of warm dung linings; the bottom heat, likewise, should not be allowed to decline. Some late Melons will keep for a long time after being cut, if placed in a dry room. Cucumbers for winter bearing should be transferred to large pots or boxes plunged in bottom heat, which should be kept steady at between 85° and 90°; the night temperature should range between 65° and 70, with plenty of moisture. Encourage plants in full bearing by the application of liquid manure. *Pines.*—Plants swelling their fruit must be kept in a moist temperature. We do not care about much syringing, preferring to maintain moisture by evaporation. Do not allow the bottom heat to decline below 85°; the night temperature may be 60°. Plants required to fruit early will now be wintering, under the influence of a full exposure to light, and abundance of air; they should, besides, be kept rather dry at the root; this will ensure good stocky plants with well-ripened leaves.

KITCHEN GARDEN.

Attend to former directions. Tie up Endive for blanching, also Cauliflowers coming in; the leaves will protect the heads from frost. Plant out Cauliflowers and Lettuces in a warm situation, on rich soil, for covering with hand-glasses or cloches. The latter are useful for enabling one to have good salads throughout the winter; therefore place some over well-established Lettuce plants towards the end of the month. Let the kitchen garden have a good cleaning before winter, removing everything which will give harbour to slugs and vermin. Still continue to hoe between advancing crops. Where Broccoli is growing too strong take it up and lay it in with the heads to the north; this will check its growth and preserve the heads from frost.

FRUIT GARDEN.

Hardy Fruit.—Golden Drop and Impératrice Plums on walls should be kept dry, to

preserve them; or they may be gathered and kept for a long time, by laying them singly in a dry room. As soon as the leaves begin to fall, fruit trees of all kinds may be transplanted either to walls, espaliers, or orchard grounds, this being the best time for the purpose, besides giving you the pick of the nurseries. Secure the beds from high winds when planted, and mulch the surface. In the case of hardy and orchard fruits pruning may take place towards the end of the month, particularly if summer pruning has been neglected.

FLOWER GARDEN AND SHRUBBERY.

Pay a little extra attention to the lawn and walks at this season; now that the beauty of the flower garden is on the wane, dead blooms and decayed leaves should be removed, and every means taken to keep up a gay appearance as long as possible.

FLORISTS' FLOWERS.

Auriculas.—Keep them in a cool northern aspect for some time to come. See that the glass is in good order, that there may be no drip, and keep it clean; also give plenty of air, and but little water. Dead foliage and aphides should always be removed as soon as they appear. *Carnations and Picotees.*—Finish potting for wintering as soon as possible; all should be completed by the 20th of the month. Harden those that were first potted; they should not, however, be exposed to heavy rains. Keep all clean of dead foliage. *Dahlias.*—Secure seed as soon as it can be procured ripe enough, and look over the collection to see that all are rightly named before frost visits us, spoiling the appearance of our gardens. Mark any promising seedling for trial next year. *Hollyhocks.*—Seed can now be procured in abundance, which should be gathered before the rains of autumn have damaged it. Continue to put in cuttings as they can be procured, and pot up the old stools of choice varieties for the purpose of propagation during the winter months. *Pansies.*—Now is the time for the general potting up from the store beds of the plants intended for blooming in pots, or to fill beds in March; give plenty of air, but not too much water; they can be effectually cleared of mildew if carefully dusted with sulphur before it has got too far ahead. Healthy cuttings put in now make excellent plants in a short time. Plant out seedlings for blooming, and gather seed from the finest autumn flowers for spring sowing. *Pinks.*—Finish planting, if not already done, and pot up a few hundred pairs, to plant out in beds late in February, or early in March; they take but little room, winter well with certainty, and produce beautifully laced flowers, if properly attended to. *Tulips.*—If the beds have been prepared, as directed in previous numbers, plant about the 1st of November, choosing a very fine dry day. If the bulbs have not already been arranged, it should be done at once, before any begin to push.





Pelargonium Df Hogg.

PELARGONIUM DR. HOGG.

WITH AN ILLUSTRATION.

THE subject of our present plate—*Pelargonium Dr. Hogg*—was raised from the original stock of Beaton's hybrids, by Mr. Wm. Paul, of the Nurseries, Waltham Cross. Beaton's race is now so widely known, and so generally appreciated, that it scarcely requires any commendation at our hands. The majority of kinds have been planted extensively in the Royal Gardens at Kew, and at Battersea; and while by means of their introduction the range of colour among *Pelargoniums* is materially extended, it is also found that these hybrids flower more profusely and are less spoiled by the weather—be it sun, wind, or rain—than the kinds derived from other sources. *Alexandra*, *Amy Hogg*, *Indian Yellow*, *Duchess*, *Glowworm*, *Orange Nosegay*, *Mrs. Wm. Paul*, and *Waltham Seedling* are now almost universally known and appreciated; and their successors *Fairy Queen*, *Nimrod*, *Peach Nosegay*, *Rebecca*, *St. George*, *Sir J. Paxton*, *Lord Chancellor*, *Tiara*, *Salmon Nosegay*, and *Waltham Lilac*, have already found their way into many of our principal gardens. *Dr. Hogg*, which is as yet in the hands of the raiser and will not be sold before May, 1867, is an improvement in form on the preceding, and has more of the blue or purple shade of colour than any previously announced. When shown in the subdued light of the exhibition tent it has some resemblance to *Amy Hogg*, but when seen in masses out of doors, in the full clear light of day, it is of an entirely different shade of colour; and the plant is of so dense a growth, and the flowering so free, that it is worthy of a place in the most limited flower garden.

The subject of the present illustration will form one of a set of new varieties selected from many thousand seedlings which will be first offered for sale in the spring of the coming year.

A FEW WORDS ABOUT BEDDING PLANTS.

THE season now closing has been on the whole very unfavourable for flowers out of doors. May was very dry with a good deal of sunshine, which made it warm in the middle of the day; but for the greater part of the month the nights were exceedingly cold, with very cutting northerly winds, and, in consequence, bedding-out was commenced later than usual. About London, even, there was scarcely anything done up to the end of May. With June came fine refreshing rains, which set every person to work planting out; but these fine rains were followed too soon by very bright, hot, sunshiny weather, just at the time the days were at their greatest length. This dried up the soil before the newly-bedded plants got established, so that frequent heavy waterings became a necessity to keep the plants alive. The early part of July was fine; but with the close of the month came heavy, drenching rains and violent gales of wind, which shattered *Roses*, *Calceolarias*, *Geraniums*, &c. Since then the weather has been very wet, with rarely two consecutive fine days up to the present time (15th of October), rendering the harvest tedious for farmers in this part, and causing serious results to the crops.

Had the beauty of our flower gardens depended entirely on flowering plants, as it did in days not long gone by, their appearance would not have been as gay and beautiful during the last two months as they have been. Variegated-leaved *Geraniums* and other ornamental coloured-leaved plants have amply made up for the loss of flowers; and the rains, which have been so injurious to the flowers, have brought out the foliage in all its beauty. I

think I never saw many of the variegated-leaved *Geraniums* more beautiful than they have been for several weeks past. Among the silver-leaved varieties, *Flower of Spring* and *Mrs. Lennox* have been very beautiful; *Bijou*, *Countess of Warwick*, *Alma*, *Mountain of Snow*, and *Queen of Queens* have also been very fine; and among the gold-leaved varieties *Golden Chain*, *Cloth of Gold*, *Golden Fleece*, *Mrs. Pollock*, and *Sunset*. Many of the other kinds have also been very fine. There were numerous complaints last season about *Cloth of Gold* not doing well. I think I never saw it more beautiful than it has been here this season, and is at the present time. A good rich soil to grow in and frequent refreshing showers, or, in the absence of the latter, frequent heavy waterings, bring it out in all its beauty. *Mrs. Pollock* and *Sunset* have been very fine; the latter I have not seen noticed or grown so much as I think it deserves. After a few days of showery weather the leaves look like so many brilliant butterflies. All the variegated-leaved kinds require to be grown in good rich soil, and in dry weather to be well watered. The *Nosegay* and *Horseshoe-leaved* varieties have not been so beautiful as usual this season, in consequence of the almost constant heavy rains and the absence of bright sunlight. In general they do very well in a poorer soil than the variegated-leaved kinds, and when established they require little or no water.

Centaureas have done well, and have been very effective, and so too has *Cineraria maritima*. *Perilla nankinensis* grows freely everywhere, and is a very manageable and useful plant. *Iresine Herbstii* is a very valuable bedding plant. I bedded it out at the end of May, and it was very effective even then. It stood the hot sunshine of June and July, and has not only withstood the many weeks of wet weather which we have had since, but has daily improved, and is at the present time very beautiful. *Amaranthus melancholicus ruber*, planted in a bed not far distant from the *Iresine*, rotted completely away with the rains; not a single plant has survived, though the bed in which it was planted was drier and more favourably situated than the one the *Iresine* was in. The *Iresine* I have in several beds, and it has done well in all, both exposed and sheltered. The *Amaranthus* did pretty well last year, as did also *Coleus Verschaffelti* in 1864; but these were fine, hot, dry seasons; but in cold, wet years they will not do for flower gardens in Yorkshire, nor do I think they will for London—that is, if they are put out in May, so that there may be a display of at least from four to five months' duration.

Delicate, tender plants, however beautiful they may be, that will only do in fine seasons, and then only for two, or at most three months, are of no use for the flower garden. We want plants that can be bedded-out about the middle of May, and that will then be effective and continue so until the middle or end of October. We then have fully five months' beautiful display. We already possess ample material for effecting this, and every year will add to the number of plants suitable for the purpose. We can get five months' display in Yorkshire. I generally get all bedded-out in May. With plenty of variegated-leaved and *Zonale Geraniums*, other ornamental coloured-leaved plants, and the usual flowering plants, the gardens look exceedingly gay and cheerful, and continue to do so until the end of October. Some seasons a severe frost will disfigure some of the beds in the beginning of October, but this is only a rare occurrence. The flower garden here is now (October 15th), as gay as it has been any time this season. In the country, where we have so much green, with grass and green trees all about, we cannot use warm decided colours too freely; the case is different near towns, where the eye wearies of bricks and mortar. Beautiful and effective as many of variegated plants are, plenty of flowering plants must also be used in all flower gardens where a gay and brilliant display is required for some months.

Most or all the variegated-leaved *Geraniums* may be planted out after the middle of May if they have been properly hardened off; of course, late spring-struck cuttings pushed on in heat under the shade of Vines cannot be properly hardened off for planting out in May. When the greater part of the beds in our flower gardens were planted with *Verbenas*, *Petunias*, and similar plants, spring-struck cuttings answered admirably; but *Geraniums* of all kinds should be struck in August. Only new kinds, or those of which a large stock may be wanted, should be struck in spring, and then it should be as early as possible, that the plants may become strong and be well hardened off before the end of May. Cuttings of *Geraniums* put in in August in any sandy soil and shaded a little from the sun, will strike root anywhere out-doors with little or no trouble. They get to be good strong plants before the short days and dull weather come on. They are easily wintered, and when potted off in spring and hardened off in cold frames without shading and with plenty of air, they can then be safely ventured out after the middle of May in ordinary seasons. If the beds have been properly prepared, and the plants are put out from the 15th to the 20th of May, they will be making fresh roots, and will get nicely established by the middle of June, and, though they may not have much growth at top, with favourable weather they will then push away rapidly, and will resist the hot weather of midsummer better than those late planted. When *Tulips* and other bulbs have been grown in the beds late planting cannot then be avoided.

I recommend all amateurs and young gardeners who wish to have a good display in the flower garden early in the season, and wish it to continue as late as possible, to plant largely variegated-leaved *Geraniums* and ornamental coloured-leaved plants, as well as flowering plants, using the former freely for edgings and for combining with the latter. I recommend them to plant the variegated-leaved *Geraniums* in good rich soil, and the plain-leaved, *Zonale*, and *Nosegay* varieties in not very rich soil. If they do this the results will be satisfactory.

Stourton.

M. SAUL.

REMARKS ON FRUIT TREE CULTURE.—No. 14.

IN my last I detailed instances in which success was attained by altering the mode of treatment in the culture of the *Apricot* to one more consonant with the principles by which practice must be regulated; and my object has been to point out in what way the method of culture adopted may be calculated to frustrate instead of furthering the object in view, and thus, by placing the right and the wrong in opposition, to assist the mind in comprehending, and the memory in retaining, the probable causes which are likely to influence success or failure. I do not mean to say that I am always right, or that my deductions are invariably correct, or even logical; but I am so persuaded that fruit tree culture may with good reason be expected to take a much higher position in the future, owing to the greater facilities for acquiring knowledge, and consequent increase of intelligence on the part of all who avail themselves of those facilities, that I wish to keep the subject before the mind of the young gardeners of the present day, in the hope that their cultivated powers of mind may be brought to bear on this important subject; for when practice is founded on an intelligent comprehension of the leading principles by which vegetation is influenced, something good will be sure to come of it; and if success does not always follow, and mistakes are made, there will be more valuable practical knowledge gained from the discovery and correction of such mistakes than from success which may be, and often is, the result of chance or highly favoured locality.

In preparing a border for Apricots, thorough drainage is indispensable, for although during the growing season, and more particularly about the time the fruit is stoning, they will require a constant and liberal supply of water, yet it is necessary that it should gradually percolate away through the drainage; for anything like sourness in the soil, arising from the stagnation of water therein, will very soon tell upon the well-doing of the trees, and is, in fact, often the sole reason why they refuse to flourish in some localities otherwise favourable, but more particularly in such as have a subsoil of strong clay.

A favourable condition of soil in a natural state for the growth of Apricots would be a deep friable loam, resting upon a porous gravelly subsoil, and about the least favourable would be a shallow strong loam on a clay subsoil. Wherever, therefore, the latter, or any assimilation thereto, prevails, a corresponding amount of care must be bestowed upon the preparation of the borders. In such a case, to secure a minimum depth of 2 feet of compost, the earth should be excavated to the depth of 30 inches close to the wall, the bottom gradually sloping to the front of the border, which should have a minimum depth of 40 inches. The width of the border should not be less than 15 feet; more would be better, because the temptation to crop such borders is too great to resist, and as there should always be a space of 5 feet from the wall kept free of crops, the wider the border is made the less necessity will there be for encroaching on that five-foot space. Along the front of the excavated border sink a small trench, in which place draining pipes of 4 or 6 inches in diameter, and from one end of these carry a substantial drain to some convenient outfall. What I should call a substantial drain in this case would be draining pipes of the above size covered with a foot or 18 inches of broken bricks or stones, and except in case of accidents such a drain would last for generations; for should the drain become choked by silt or other débris, or be penetrated by roots, the water would pass freely away through the broken stones. The drainage for the border, consisting of broken bricks and stones, should now be wheeled in, and laid to the depth of 6 inches near the wall and a foot or more near the front; cover the stones with fresh turves cut thin and laid with the grassy side downwards, and then fill up the border with the prepared compost, which, for Apricots, may consist of two-thirds of good friable loam and one-third of vegetable matter, not manurial, to which may be added a portion of old mortar rubbish, and, during the process of mixing, a few handfuls of salt thrown in occasionally.

In a border so prepared it would be a great waste of time to plant small trees, because trees of from four to six years of age, and just ready to commence bearing fruit, may be planted with great success. Suitable trees of the kind may generally be found in those nurseries where the proper cultivation of fruit trees is made a speciality; but as no tree more requires a special preparation in the early stages than the Apricot, it is better for the operator to select young maiden trees, and bring them to the fruit-bearing state himself, either planting them in any little vacant spaces against the walls, or, if not, in a sheltered place in an open quarter, and train them to stakes espalier fashion. In selecting the maiden trees see that the stock is clean and free-growing, and especially that it is sound and healthy at the point of junction between the stock and the maiden shoot, as premature decay, or an unnatural enlargement at that point, very often results from inattention to this apparently very trivial question.

Redleaf.

JOHN COX.

TARGETES SIGNATA PUMILA.

I HAVE on more than one occasion recommended this dwarf Marigold to the notice of my friends as a bedder. This season, although so wet and windy,

especially the latter part, the *Tagetes* has withstood the drip, and looks admirable when all its associates are on the wane. As a yellow bedding annual it is yet without its equal. Its habit is good. It grows freely even in poor soils, and blooms until frost puts an end to its existence; and all we require to make it perfect is a neat double flower. Then, indeed, we shall have the best annual of the day.

Wrotham Park, Barnet.

JOHN EDLINGTON.

THE SPRING, SUMMER, AND AUTUMN OF 1866.

THE year 1866 will be long remembered for the vicissitudes of the weather and the injuries done to the cereal crops, fruits, and bedding plants by the continual rain in August and September.

The severe frosts in May did much injury to the crops of Plums, Cherries, Pears, and Apples, both on walls and standards, and the only situations in which they escaped were those where the trees were well sheltered or protected. June was a very favourable month, with plenty of moisture and in the last week hot forcing weather. July was likewise a fine month, for although breezy, cold, and wet at the beginning, an almost tropical heat prevailed from the 10th to the 27th, which forced on the growing crops wonderfully; but very heavy rains fell when the month ended. August and September were characterised by rain falling nearly every day, with some strong breezy periods at intervals. The following was the fall of rain here for the above months:—June, 3.40 inches; July, 3.04 inches; August, 3.24 inches; September, 3.83 inches. Total, 13.51 inches, or about $5\frac{1}{2}$ inches above the average. It was not, however, the great amount of rain, but the daily soaking in August and September and the want of sun that did so much injury. I have seen 6 inches of rain fall in August in five or six days, and not do so much injury as the smaller amount in this year.

The following observations on the effects of the season, as regards the fruit crops and bedding plants at this place, may be of some interest to the readers of the *FLORIST AND POMOLOGIST*.

As regards Strawberries, Currants, Raspberries, and Gooseberries, the crops were abundant and of good quality. Pears and Plums on south walls failed; but on east and west aspects such varieties as *Winter Nelis*, *Marie Louise*, *Beurré d'Amanlis*, *Beurré Superfin*, *Zephirin Grégoire*, *Forelle*, and *Surpasse Crasanne*, bore good crops. Apricots on a wall temporarily covered with glass lights were an average crop; but all that were not effectually protected failed. Peaches and Nectarines on the open walls likewise failed, for last autumn the trees were covered with aphides; and all the leaves dropped before the flower-buds were perfected or the wood well ripened. In a glass-cased wall, 800 feet long, the crops of Peaches, Nectarines, Plums, and Cherries, were abundant; but in flavour the Peaches and Nectarines were not so good as usual, the only exceptions being the *Noblesse* and *Malta*, a most delicious little Peach, and amongst Nectarines the *Downton*, *Orange*, and *Elruge*. The new *Victoria* Nectarine did not ripen nor colour well, and being allied to the *Stanwick*, it may require a warm summer to show its true character. A row of three hundred varieties of Pears, Plums, and Cherries in pots were fruited in this structure, and bore excellent crops, especially the Plums and Cherries. Amongst dessert Apples on standards, the *Margil*, *Cox's Orange Pippin*, *Early Harvest*, *Summer Golden Pippin*, and *Sturmer Pippin* bore the best crops; and the best kitchen Apples were the *Keswick* and *Manx Codlins*, *New Hawthornden*, *Lord Suffield*, *Alfriston*, and *Northern Greening*.

As to the bedding plants, they suffered so much from the daily rains, that by the middle of September the effect of the Scarlet Geraniums and yellow Calceolarias was gone. That grand old late bedding Calceolaria the lemon-coloured Amplexicaulis stood the rain better than any, and where used here the beds have been fine up to the present time. In a long range of seventy circular match beds, Ageratum mexicanum, edged with Tagetes signata pumila, has been very gay, and helped to brighten up all the other beds during the wet weather. The Tagetes requires careful selection from seed, as there is a tall variety, which spoils the dwarf sort in beds or edgings. Viola cornuta is another great acquisition, on account of its peculiar tint of colour and its standing wet weather so well. It is likely to produce different shades of colour from seeds, as I had a batch of seedlings given me by a friend in June last, and one plant I have marked for propagation, the flower being nearly of as deep a blue as the Cliveden Blue Pansy. Amongst the new Verbenas, Thomson's Crimson King possesses an excellent habit, and stands the rain and sun well. A dwarf crimson bedding Calceolaria, named Sang's Ambassador, is likewise a capital variety for small beds or ribbons, and seems to stand the weather well.

For fine effect in September and October I can recommend the following combination of colours for large beds—namely, the centre of Crystal Palace Dahlia, then a broad mass of purple Zelinda Dahlia, next a row of Amplexicaulis Calceolaria, and a broad edging of Cineraria maritima. Four very large circular beds, planted here with the above plants, have been very good all through September, and are now at their best.

In wet and unpropitious summers and autumns the fine-foliaged bedding plants will always help to keep up the display in flower gardens to the last. This wet autumn the too-hastily condemned Iresine has quite redeemed its character. With me the Coleus and Amaranthus eclipse it in summer; but now they are going out, and the Iresine seems to become finer and brighter in colour every day. In warm, dry summers the Iresine requires plenty of water and a rich soil, and when it is properly managed it will be found a great acquisition.

One of my best beds of ornamental-foliaged plants this season was planted thus:—Purple Orach and variegated Coltsfoot, plant for plant, with an edging of Golden Fleece Geranium. A few plants of Mangles' Variegated Geranium were mixed with the Coltsfoot. The Orach has to be frequently stopped to keep it to the desired height. To any one who would wish to try this combination next summer, I can guarantee a new sensation in hardy fine-foliaged bedding plants.

Welbeck Gardens.

WILLIAM TILLERY.

POTATOES.

I HEAR great complaints about the Potato disease. I planted very early, and, up to this time, my man says he has not dug up forty bad tubers. He further says, according to his experience, that round Potatoes do not take the disease so much as Kidneys, and that it is useless to dig them up before they are ripe with the view of escape. Some years ago he dug up his Silver-skins early; but though no trace of disease could be seen, they all rotted within a month. He also says that he met Mr. Farquharson's gardener at Gunville a few days ago, and he told him, out of three sacks dug up early this year, and without any appearance of disease, two sacks had rotted. I never dig before the Potatoes are ripe, because it spoils such as escape the disease. They

become close and waxy. It is best to let them rot before storing them away. Those intended for seed I allow to lie on the ground till they become green. I find it best not to cut Kidney Potatoes at all for seed, but to give them more room in proportion to their size. Kidney Potatoes, especially Walnut-leaved ones, should be suffered to sprout the length of a barleycorn before planting, and they should not be covered deeply. If these two things are not attended to, some sorts, such as the Birmingham Prizetaker, will not come up regularly.

I have a splendid crop of Potatoes of all kinds. I have some capital sorts, and hardly know which to give up, though I see no use in having so many; they lead to confusion.

These I have used already, and they are superexcellent—viz., Royal Ashleaf, Dalmahoy, Red Ashleaf, Yorkshire Hero, an unnamed Yorkshire seedling, Glory of Yorkshire, and Almond's Seedling. The last four were kindly sent to me by Mr. Taylor, of Fencote, Bedale, Yorkshire. The unnamed seedling I am eating now (October 7th), and it is equal to the old Ashleaf. The Yorkshire Hero I can strongly and universally recommend. They are 4s. a-bushel. I have, besides the above, the Scotch Dons, Red Robins, Salmon Kidneys, and Old Grammars. The last two are the latest, and capital keepers. I have heavy crops of both sorts. The last is a large, deep-eyed, round Potato; the Salmon Kidneys need no comment. They are equal to anything.

Out of the above lot, your readers will do well to select the Royal Ashleaf, Dalmahoy, Yorkshire Hero, Red Robin (good till Christmas), Salmon Kidney, and Old Grammars. For large families I recommend highly the Scotch Dons. The Old Grammars are in some places called Rough Reds. I once took up 12 lbs. of tubers from one plant, and sent them to the Blandford Exhibition. The Scotch Dons I bought of Lord Portman's steward.

With regard to sorts taking the disease, I see but little difference. Plant first early sorts; this is your best chance. It is curious that whilst all the Potatoes this spring in the neighbourhood were cut to the earth and blackened by frost, my Potatoes, some of which were a foot high, were not even singed. I am still as much puzzled as ever by the Potato disease. Every theory I have formed has been knocked over. I am just going (October 7th) to fork up my crops.

Okeford Fitzpaine.

W. F. RADCLYFFE.

TROPÆOLUMS.

THESE constitute a most useful tribe of bedding plants: I allude to the dwarf varieties. Their growth is close and compact, they bloom very freely, and are easily propagated and preserved. King of Tom Thumbs has proved a great acquisition to this useful class, as the flowers are freely produced, and of an intense dark scarlet; the foliage, also, being of a very dark green, is a pleasing contrast to the brilliancy of the flowers. Elegans is so well known as to need no description. It has gained a wide notoriety from being so largely employed at the Crystal Palace. The habit is very dwarf, and it is a free and continuous bloomer. Eclipse is of the same habit as Elegans, but is of an intense scarlet colour, and has a telling effect in a mass, having a vividness not possessed by its more sober colleague Elegans. Garibaldi is also a good bedder. It is of a dark orange scarlet colour, and blooms very freely. Meteor produces a profusion of rich dark crimson flowers, and is of good habit. The old Cattell's Crimson, Cattell's Scarlet, Scarlet Tom Thumb, and the Yellow Tom Thumb, are also very useful indeed, but the last will never make a good, much less a sufficient, substitute for the Yellow Calceolaria. I saw growing

at the Royal Nurseries, Slough, this summer, a variety somewhat more compact in habit than Scarlet Tom Thumb, but of a soft orange scarlet colour, and blooming with a most surprising profusion. It appears to be quite distinct from anything in cultivation, and will be highly acceptable for ribbon-borders.

Of varieties for basket and trellis work, I may instance Brilliant, a strong-growing, deep scarlet; Atrococcineum, known also as Splendens, very free-blooming, and having plenty of small, deep scarlet flowers; and Ball of Fire, very bright scarlet, a free bloomer, and a good climber.

E. W.

DIANTHUS HEDDEWIGII.

In the north of Ireland we found this Pink succeed admirably, notwithstanding the almost perpetual dripping to which it was subject: rain and wind seemed to affect it but little. We have also proved it here this season to be equally satisfactory. This and *Tagetes signata pumila* are now doing better than anything in the garden.

The main point to be attended to in the cultivation of this beautiful *Dianthus* is to sow early and secure strong plants. Sow, say in February, in gentle heat, and as soon as the seedlings can be handled prick them out in boxes and harden off, growing them on in a cool frame until bedding-out time. With this treatment they will commence blooming at once, and continue to do so till frost. The blooms are admirably adapted for bouquet and vase purposes.

Wrotham Park.

JOHN EDLINGTON.

SELECT GOOSEBERRIES.

A CORRESPONDENT, "W. R.," requests a list of the best Gooseberries, "not the huge Crabs the Lancashire folks call Gooseberries," but the best for flavour, together with a short description of each. To meet his request we extract from the third edition of Dr. Hogg's "Fruit Manual" the descriptions of the following varieties, which may be considered the best of each colour:—

RED.

COMPANION (Hopley).—Fruit of medium length, chiefly two-veined, a little flat-sided towards the stalk, with plump shoulders, and nicely rounded towards the nose. Skin thin, and very hairy, bright light red. Flavour first-rate. Weight in 1852, 31 dwt. 11 gr. An early variety.

A very handsome early variety, suitable either for cropping or exhibition purposes. Makes a fine spreading bush, and bears freely.

IRONMONGER (*Hairy Black*).—Small and roundish. Skin red, and hairy. A first-rate variety, of excellent flavour, but inferior to Red Champagne, which is also known under this name chiefly in Scotland, and from which it is distinguished in having rounder and darker red fruit, and a spreading bush—that of the Red Champagne being erect; leaves downy.

KEENS' SEEDLING (*Keens' Seedling Warrington*).—Medium sized, oblong. Skin brownish red, hairy. Of first-rate quality. Bush pendulous; a great bearer, and earlier than Red Warrington.

MISS BOLD (*Pigeon's Egg*).—Medium sized, roundish. Skin red, and downy. Of first-rate quality, and early; it somewhat resembles Red Walnut, but is better. Bush spreading.

RASPBERRY (*Old Preserver; Nutmeg*).—Fruit small, roundish-oblong. Skin thick, dark red, and hairy. Richly flavoured and sweet. Ripens early. Bush spreading, and a good bearer.

RED CHAMPAGNE (*Dr. Davies' Upright; Countess of Errol; Ironmonger*, in Scotland).—Small and roundish-oblong, sometimes tapering towards the stalk. Skin rather thick, light red, and hairy. Flavour very rich, vinous, and sweet. Bush very erect, and a good bearer.

RED OVAL.—Large and oval. Skin red, and hairy. Of first-rate quality. Bush spreading.

RED WARRINGTON (*Aston; Aston Seedling; Volunteer*).—Above medium size, roundish-oblong. Skin red, and hairy. A first-rate late variety, and highly esteemed for preserving. Bush pendulous.

ROUGH RED (*Little Red Hairy; Old Scotch Red; Thick-skinned Red*).—Small and round. Skin red, and hairy. A first-rate variety, of excellent flavour, and highly esteemed for preserving. Bush spreading.

SMALL ROUGH RED (*Small Dark Rough Red*).—Small and round. Skin red, and hairy. Of first-rate quality, and early. Bush spreading, and the leaves pubescent.

SPEEDWELL (Poulson).—Fruit plump, of medium length. Skin very hairy, bright light red. Flavour first-rate. In 1864, it weighed 29 dwt. 4 gr. This is an early variety. The bush is large, and makes vigorous erect wood. An excellent bearer.

TURKEY RED (*Smooth Red*).—Small and obovate. Skin smooth, and red. Of first-rate flavour. Bush spreading.

YELLOW.

BROOM GIRL (Hampson).—Fruit plump, square, and shouldered, from 12 to 15 eighths long, and 5 inches to $5\frac{3}{8}$ in circumference, with a very long stalk. Skin thin and hairy, dark yellow, of an olive shade. Flavour first-rate. Ripens early. In 1852 it weighed 28 dwt. 12 gr.

Bush large, makes strong upright wood, and bears freely. An excellent old variety.

CANDIDATE (Crompton).—Fruit very long; the two-veined ones tapering towards the stalk; the three-veined ones rounded and better formed. Skin smooth, dark muddy green, shaded with yellow. Flavour good, but not first-class. In 1864 weighed 25 dwt.

Makes pendulous wood, and forms a large spreading bush.

EARLY SULPHUR (*Golden Ball; Golden Bull; Moss's Seedling*).—Medium sized, roundish oblong. Skin yellow, and hairy. Of second-rate quality. Bush erect, very early, and a great bearer; leaves downy.

GIPSY QUEEN (Leicester).—Fruit from 12 to 14 eighths in length, and $4\frac{1}{2}$ to 5 inches in circumference. Skin smooth and thin, pale yellow, blended with white. Flesh delicate and richly flavoured. In 1862 it weighed 22 dwt. 11 gr.

Bush medium sized, bears freely, and makes long, slender wood. It is an early variety.

GLORY OF RATCLIFF (Allen).—Medium sized, oblong. Skin thick, quite smooth, and light green. Of excellent flavour, and sweet. Bush spreading and somewhat pendulous, and a good bearer.

LEADER (Pigott).—Fruit of medium length, square shoulders; the seed veins a little sunk towards the stalk. Skin thin, smooth, dull greenish yellow, covered with a greyish down. Ripens early, and has a very soft appearance. Flavour very rich, and first-rate. A good old standard variety. In 1843 weighed 28 dwt. 14 gr., and has many times been the heaviest yellow of the season. Bush luxuriant, and an excellent bearer.

MORETON HERO (Pigott).—Fruit oval, from 12 to 15 eighths in length,

and $4\frac{1}{2}$ to 5 inches in circumference. Skin smooth or downy, thin, pale yellow. Flesh very richly flavoured. In 1852 it weighed 26 dwt. 6 gr.

Bears freely, and makes a fine bush.

PERFECTION (Gregory).—Large and roundish. Skin green, and downy. A first-rate variety, and late. Bush pendulous.

RUMBULLION (*Yellow Globe; Round Yellow*).—Small and roundish. Skin pale yellow, and downy. Flavour of second-rate quality. Bush erect, and a great bearer; and the fruit much grown for bottling.

YELLOW BALL.—Medium sized, roundish. Skin yellow, and smooth. Flavour of first-rate quality. Bush erect.

YELLOW CHAMPAGNE (*Hairy Amber*).—Small and roundish. Skin yellow, and hairy. Of first-rate excellence. Bush erect.

GREEN.

BEESTON CASTLE (Nicholls).—Fruit well formed. Berry rather oblong, and a little taper towards the stalk; from 12 to 14 eighths in length, and $4\frac{1}{2}$ to 5 inches in circumference. Skin smooth, bright dark green. In 1852, the raiser weighed it 26 dwt. 12 gr.

Bush large, with strong erect prickly wood, and an uncertain cropper.

GENERAL MARKHAM (Dennis).—A good-sized handsome berry, from 13 to 15 eighths of an inch long, and from $4\frac{1}{4}$ to $4\frac{3}{4}$ inches in circumference. Skin smooth, dark bright green, with light-coloured veins; a very handsome berry of good flavour. In 1854 it weighed 23 dwt. 6 gr.

A large bush which bears freely, and makes vigorous wood, with large leaves, which have a woolly appearance.

GREEN GASCOIGNE (*Early Green; Early Green Hairy*).—Small and round. Skin thin, dark green, and hairy. Very early, and sweet. Bush very erect, and an excellent bearer.

GREEN OVERALL (Forster).—Fruit very handsome, round, evenly formed, of medium length. Skin thin, smooth, deep green, covered with a grey down or bloom, similar to that on the Peach. Flavour delicious—first-rate. In 1852 it weighed 27 dwt. 6 gr.

Bush spreading; bears freely. An early variety.

GREEN WALNUT (*Belmont Green; Smooth Green; Nonpareil*).—Fruit medium sized, obovate. Skin very thin, dark green, and smooth. An early variety, of excellent flavour. Bush with long-spreading shoots; leaves close to the branches; and a great bearer.

HEART OF OAK (Massey).—Large and oblong, tapering to the stalk. Skin thin, green, with yellowish veins. Rich and excellent. Bush pendulous, and an abundant bearer.

HEBBURN PROLIFIC.—Medium sized, roundish. Skin rather thick, dull green, and hairy. Very rich and sweet. Bush erect, with broad, thick leaves, and an abundant bearer.

KEEPSAKE (Banks).—Fruit of medium length, a little tapered towards the stalk; nose plump and shoulders square. Skin occasionally a little hairy. Flavour delicious. In 1841 it weighed 23 dwt. 4 gr.

The bush is very large, and an excellent bearer. The fruit soon gets large, and ripens early.

LOFTY (Oldfield).—Fruit long, from 11 to 14 eighths long, and $4\frac{3}{4}$ to $5\frac{1}{4}$ inches in circumference. Skin smooth, or occasionally a little hairy, very thin, dark green. Flesh tender, very rich and delicious. In 1855 it weighed 23 dwt. 15 gr.

Bush medium sized, and bears freely.

LORD ELDON (Leicester).—Fruit round, from 12 to 14 eighths in length,

and $4\frac{1}{2}$ to 5 inches in circumference. Skin thin and smooth, dark green. Flesh tender, sweet, and very rich. Ripens early. In 1858 it weighed 22 dwt. 20 gr.

The bush is medium sized, bears freely, and makes slender, straight wood.

MODEL (Oldfield).—Fruit tapering slightly, from 12 to 14 eighths in length, and $4\frac{1}{4}$ to 5 inches in circumference, with long slender stalk, which is winged at the joint. Skin hairy, dull pale green. Flavour excellent. A large variety, but very tender in spring, and generally a shy cropper.

Bush spreading and large; makes long vigorous wood.

PITMASTON GREEN GAGE.—Small and obovate. Skin green, and smooth. A first-rate variety, very sugary, and will hang on the bush till it becomes shrivelled. Bush erect.

RANDOM GREEN (Boots).—Fruit plump and well-formed, from 12 to 14 eighths long, and $4\frac{1}{2}$ to $5\frac{1}{8}$ inches in circumference. Skin smooth and thin, dark bright green, with light-coloured veins. Flesh tender, and of excellent flavour. In 1852 it weighed 25 dwt. 15 gr. A great bearer.

WHITE.

BRIGHT VENUS (Taylor).—Medium sized, obovate. Skin slightly hairy, white, and covered with a bloom when it hangs long. Sugary, rich, and excellent, and hangs till it shrivels. Bush rather erect, and a good bearer.

CRYSTAL.—Small and roundish. Skin thick, smooth, or very slightly downy, and white. Of good flavour, and chiefly valuable for coming in late. Bush spreading, and rather pendulous; leaves not hairy above.

EAGLE (Cooke).—Fruit long, tapering slightly towards the stalk, which is long and fine. Skin smooth, greenish white. Flavour good. In 1830 weighed 37 dwt. 12 gr.

Bush large and spreading; makes long slender wood, and bears well. A good old variety, now surpassed by newer kinds for exhibition.

EARLY WHITE.—Medium sized, roundish oblong. Skin thin, transparent, yellowish white, and slightly downy. Very sweet, good, and early. A first-rate variety. Bush spreading and erect; an excellent bearer.

HEDGEHOG.—Medium sized, roundish. Skin thin, white, and hairy. A richly-flavoured variety. Bush erect; the shoots thickly set with small bristly spines. This name is also applied to Glenton Green in Scotland.

JENNY JONES (Leicester).—Fruit long, berry from 13 to 15 eighths in length, and $4\frac{1}{4}$ to $4\frac{3}{4}$ inches in circumference. Skin smooth, thin, greenish white. Flesh tender and of excellent flavour. In 1860 weighed 22 dwt. 1 gr.

Bush spreading, and a moderate bearer.

KING OF TRUMPS (Lees).—Fruit plump and well-formed; of medium length. Rather flat-sided towards the stalk, and with broad shoulders. Skin a little hairy, dull greenish white. Flavour good. In 1862 weighed 26 dwt. 15 gr.

Bush makes long slender wood, and is a free bearer.

LADY LEICESTER (Bell).—Fruit plump, of medium length; the seed veins a little sunk; shoulders broad, and a little raised. Skin hairy, greyish white, with a light shade of green from its green veins. In 1852 weighed 30 dwt. 4 gr.

The bush makes wood of a medium strength which turns a little from each bud, and bears freely. An early variety.

MAYOR OF OLDHAM.—Fruit round, from 12 to 13 eighths in length, and $4\frac{1}{4}$ to $4\frac{1}{2}$ inches in circumference. Skin smooth, very thin, dull greenish white. Flesh tender, and of exquisite flavour.

Bears freely, and makes a fine bush.

PATIENCE (Brown).—Fruit long, from 13 to 15 eighths in length, and

$4\frac{1}{2}$ to $4\frac{5}{8}$ inches in circumference. Skin smooth, thin, greenish, speckled white. Flesh tender, and very fine flavour. In 1852 it weighed 23 dwt. 17 gr.

Bears freely, and makes a fine bush.

SNOWBALL (Adams).—Medium sized, roundish. Skin white, and hairy. Of first-rate flavour. Bush pendulous.

TALLY Ho (Riley).—Fruit long oval. Skin hairy, greenish white. Flavour moderate. In 1852, weighed 26 dwt. 18 gr.

Makes strongly prickly wood. A good bearer, and forms a large bush.

WHITE CHAMPAGNE.—Small and roundish oblong. Skin white, and hairy. Flavour of first-rate quality. Bush erect; leaves pubescent.

WHITESMITH (Woodward), (*Whitesmith*; *Sir Sidney Smith*; *Hall's Seedling*; *Lancashire Lass*; *Grundy's Lady Lilford*).—Large, roundish-oblong. Skin white, and downy. Flavour of first-rate excellence. Bush erect, and a good bearer.

SPRING DECORATION.

I HAVE just commenced bedding-out for spring. My beds are never allowed to be idle, for, no sooner are they cleared of the summer decorative material, than they are filled with something which shall begin to bloom when the first call of the cuckoo is heard, and that will aid in rendering mother earth more lovely when the nightingale pours forth his song. Surely the spring is the season of flowers; it is then that Nature, left to herself, assumes her loveliest garb; Daisies, Primroses, Daffodils, and Buttercups smile a welcome to returning spring; the flowering trees are then at their gayest, the birds sing sweetest, the air is freshest, and all around is beautiful. Why, then, in the garden, should the flower-beds expose but a bare surface of brown earth? And do they not strike the beholder as being sadly out of place when all around is so cheerful and gay? An apologist for this state of things in spring will soon start up and say, Wait a little while, just a month or two, and then all these beds will be as full of beauty as they are devoid of it. Granted; but why not have them as gay now as then? why be content with a season of bloom that continues only a few months, when, with a little trouble and foresight, you may extend that season nearly two months longer? But with what shall it be done? Well, with almost anything that is hardy, whether annual, biennial, or perennial, that is dwarf in habit, will bloom early, and is easy of propagation.

A lovely dwarf annual which I am now using for the first time for this purpose is the *Limnanthes Douglasii*, with a cup-shaped flower like the *Nemophila*, colour white and orange, height 6 inches. Another especial favourite is the *Saponaria calabrica multiflora*, rosy pink, height 8 inches; and it will produce one of the most elegant masses of bloom which it is possible to conceive. The great endurance of this annual is very noticeable. I sowed a batch of annuals in the spring, on a warm border, in order to obtain seed for autumn-sowing, the *Saponaria* being among the rest; and although the others bloomed and seeded in due course, and have grown and are now being planted out, the *Saponaria* still continues to be one mass of bloom, seeming to defy the rain, which only had the effect of making it look brighter than ever. These are only two out of many annuals; but among those old-fashioned ones which everybody has grown at some time or other, almost any shade of colour can be obtained to assist in making a grand display in the spring.

Whatever is to be done in order to produce such a result, no time should be lost in taking active measures. I am filling up one lot of beds with *Silene*, *Alyssum saxatile*, *Cheiranthus Marshalli*, *Myosotis*, *Nemophila*, *Virginian Stock*, and *Perennial Candytuft* and *Cerastium*, both of the purest white; another

batch with *Eschscholtzia*, *Collinsia bicolor*, *Candytuft*, *Nemophila*, *Limnanthes Douglasii*, and *Saponaria*; then in other beds and borders I shall have Pansies of various colours, *Polyanthus*, double Primroses, variegated *Arabis*, *Stachys lanata*, *Saxifraga granulata*, and *Phlox verna*. Surely it will be admitted that with such a variety of material it is as possible to make one's garden look as cheerful in the spring as at any period of the year.

The very late frosts which we had last spring should serve as a warning against bedding-out tender plants early; even here, in the sunny south, some of my neighbours were compelled to take up the plants which they had just bedded out, so much were they injured by the frost, whilst I had no necessity to turn out a plant till after my return from the great International Horticultural Exhibition last May. To see spring flower gardening in all its beauty and perfection, go to Cliveden in May. There the visitor will find a very paradise of spring flowers, the various colours skilfully blended by the master hand of Mr. Fleming, the chief pioneer in spring flower gardening; there, after passing along umbrageous walks and through woods, you suddenly come out upon the grand terrace, obtain a view of magnificent scenery and the Thames in the distance; whilst in the foreground of the picture is the famous flower garden, a mass of soft but varied colouring, produced by the use of hardy plants.

As a last word, I would say to all who may wish to prepare for a rich display in spring: Now is the time.

A. D.

RIBSTON HALL, YORKSHIRE.

THE SEAT OF JOSEPH DENT, ESQ.

THIS beautiful place is situated on the banks of the river Nidd, and is distant about three miles from Knaresborough, and four from Wetherby. There are two approaches—one from the village of Ribston on the Knaresborough and Wetherby road, which passes over the Nidd, the other from Walshford on the Wetherby and Boroughbridge road; they both unite within a few hundred yards of the north side of the mansion. The park, of which the surface is flat, is extensive, and contains some very fine specimens of trees, such as Oaks, Elms, Ash, Walnuts, Crabs, Thorns, &c. Near a pond close to the kitchen garden there is a very fine specimen of the Oriental Plane. The girth of the trunk at 3 feet from the ground is 15 feet 5 inches, and the diameter of the space covered by the branches is 100 feet; these dimensions will give some idea of its size. There is also a fine specimen of the common Pear (*Pyrus communis*), in the park. It is 50 feet high, and the trunk is 7 feet 8 inches in circumference. It has this season a heavy crop of its small acrid fruit.

In the park, about 300 yards from the Plane tree, once stood the original Ribston Pippin tree. This was raised from pips, sent home from Rouen in 1709 by Sir Harry Goodrick, Bart. The trunk of the original tree was blown down and removed many years ago; but a portion of it may now be seen outside the gardener's house, where it is taken great care of by Mr. Jones, the gardener. A sucker from the original tree now occupies the place of the latter. It does not grow well; indeed, owing to some of the branches dying off annually, it is now much less in size than when I first saw it some seventeen years ago. The branches have died off very much since the frost of December, 1860. It throws up suckers freely, so that should the present tree be lost, one of them would soon make a nice tree with attention.

The kitchen garden is not far from the site of the original Ribston Apple tree. It is of good size, and every inch of the ground is made the most of.

There are two good ranges of glass: the back range consists of three vineries and a Peach-house. Two of the vineries are large houses, being lofty and wide. There are some good specimens of stove plants and Ferns grown in these houses. Ribston has long been famous for its Grapes and Pines, and the crops now yearly obtained maintain its high character. Here have been grown some of the finest Muscat Grapes which I have ever seen. One of the large vineries Mr. Jones fresh planted about three years since, making an entirely new border, principally of turves. The sorts planted are Black Hamburgh, Muscat Hamburgh, Muscat of Alexandria, and Trebbiano. They are splendid Vines for the time they have been planted. The Muscat Hamburghs are on their own roots, and growing in an outside border, and certainly no Vines could possibly have done better than they have. They are bearing a heavy crop of magnificent fruit this season; the bunches large, and the berries everything that could be desired.

The front or second range of glass consists of three Pine-stoves and a vinery. In the latter were some good Muscat bunches at the time of my recent visit. Two of the Pine-stoves are filled with fruiting plants, all planted out, the bottom heat being supplied by hot-water pipes. The succession plants are grown in pots. Nothing can exceed the health and vigour of these plants. Many of the fruiting plants had splendid fruit swelling when I saw them. A few years ago the old pipes and boilers that heated these ranges of glass, being out of repair, were all taken away, and new pipes, boilers, stop-cock, &c., fixed in their place, so that the heating is thoroughly efficient. I may here remark, that all the houses and glass about the place are in the best possible repair, the woodwork being kept well painted. At the back of the garden there is a large house for wintering bedding plants, and a good large Cucumber-pit, besides numerous pits and frames for the growth of Melons and for other purposes, also the potting-sheds; and behind all Mr. Jones grows his Sea-kale, so that all litter and dirt may be kept out of the garden.

Fruit trees of all kinds do well here. Peaches on the open wall were a good crop this season, though in general scarce in this part of the country. Pears and Apples are a heavy crop. There is a number of nice dwarf Apple trees around the borders. I could never correctly ascertain what stock they are worked on. The Hawthornden grows larger here than I ever saw it elsewhere. Emperor Alexander and King of the Pippins also grow very large. Altogether there is a good assortment of Apples and Pears.

Passing through a door on the south of the kitchen garden we enter the conservatory—a long lean-to building. It used formerly to be in three compartments; but latterly Mr. Jones has had the partitions removed, which has greatly improved its appearance. This is kept gay all the year round with Cinerarias, Primulas, Camellias, Roses, Geraniums, &c. Mr. Jones has planted out Fuchsias and trained them part of the way up the rafters. The effect of these from either end is very beautiful; they are masses of bloom throughout the summer. In winter they are pruned in well.

Leaving the conservatory we enter the pleasure grounds. These are well laid out, and contain a rich collection of trees and shrubs. The collection of Conifers is extensive and interesting; but as it would occupy too much space to notice every specimen individually, I will merely mention a few of the principal ones in passing, and subjoin a list of all the most interesting. Of Yews there are numerous grand specimens all over the grounds. The character and habit of some are very beautiful. Ribston suffered much from the frost of 1860. Among the many fine things that were killed were some noble specimens of *Cedrus deodara*—one of them was a very grand object; but a person not knowing Ribston previous to that time, visiting it now, would not

imagine that a single shrub had been killed, so rapidly have the common Laurels and other shrubs recovered, and so well have the large Yews and other trees done that were removed to fill up gaps. A number of Conifers were planted in the spring of 1861. These have succeeded remarkably well; indeed one portion of the ground appears overcrowded with fine promising young specimens. Near the conservatory there is a fine specimen of *Pinus excelsa*, 30 feet high; the girth of the trunk is 3 feet 7 inches, and the branches extend a great length over to the grass. This stood the brunt of 1860, as did also a fine plant of *Picea pinsapo* a little way off. It is 22 feet high, and its circumference at 3 feet from the ground is 2 feet. It is a beautifully formed specimen, with branches feathered to the grass. There are some more very fine young trees of *P. pinsapo*, but not quite so high. *Taxodium sempervirens* stood the frost of 1860. It is 23 feet high, and measures 1 foot 8 inches in circumference. The highest plant of *Wellingtonia gigantea* is 18 feet 3 inches. This was planted we believe in the spring of 1861, and was then only a small, poor plant. It is now a very handsome specimen. There is a great number of plants of *Berberis Darwinii* in the grounds, also of *B. japonica*. Several attempts have been made to grow *Rhododendrons*, but without success, the limestone rock being too near the surface.

The mansion is situated near the river Nidd, and at the east end of it there is a very ancient chapel, and within a few yards of this there is a very old Mulberry tree. The terrace garden is at the south front of the mansion, and is in summer well filled with the usual bedding plants. In spring there is a fine display of bulbs, particularly of Crocuses. At a short distance from the terrace there is a number of large beds, which are kept filled with perennials and annuals. Of Roses there is a good collection of the leading kinds; some grown as standards and others as dwarfs.

I may remark that the gardens and grounds at Ribston are kept in the highest possible order, and reflect the greatest credit on Mr. Jones. Mr. Dent kindly allows the gardens and grounds to be opened to the public once a-week—on Tuesdays.

List of some of the principal Conifers at Ribston:—*Abies Menziesii*, 22 feet high, girth of trunk at 3 feet from the ground, 1 foot 11 inches; *A. Douglasii*, 16 feet high, girth of trunk at 3 feet from the ground, 1 foot 2 inches; *A. morinda*, 22 feet high, girth of trunk at 3 feet from the ground, 1 foot 9 inches; *A. Mertensiana*, 12 feet high; *A. nigra*, 22 feet high, girth of trunk at 3 feet from the ground, 1 foot 9 inches; *Cedrus atlantica*, 21 feet high, girth of trunk at 3 feet from the ground, 2 feet 8 inches; *C. deodara*, 15 feet high, girth of trunk at 3 feet from the ground, 2 feet 2 inches; *Chamaecyparis sphæroidea*, 31 feet high, girth of trunk at 3 feet from the ground, 2 feet; *Cryptomeria japonica*, 15 feet high; *Cupressus Lawsoniana*, 13 feet high; *C. Lawsoniana erecta*, 9 feet high; *C. cashmerensis*, 12½ feet high; *C. macrocarpa*, 12½ feet high; *Thuja Craigiana*, 13 feet high; *Juniperus chinensis*, 14 feet high; *Pinus humilis*, 17 feet high; *P. macrocarpa*, 19 feet high, girth of trunk at 3 feet from the ground, 1 foot 5 inches; *P. cembra*, 20 feet high, girth of trunk at 3 feet from the ground, 1 foot 3 inches; *P. Benthamiana*, 11 feet high; *P. tuberculata*, 14 feet high, girth of trunk at 3 feet from the ground, 1 foot 4 inches; *P. taurica*, 9 feet high; *P. excelsa*, 30 feet high, girth of trunk at 3 feet from the ground, 3 feet 7 inches; *P. strobus*, 56 feet high, girth of trunk at 3 feet from the ground, 5 feet 9 inches; *Taxodium sempervirens*, 23 feet high, girth of trunk at 3 feet from the ground, 1 foot 8 inches; *Thuja plicata*, 11 feet high; *T. gigantea*, 10 feet high; *Thujopsis borealis*, 9½ feet high, girth of trunk at 3 feet from the ground, 1 foot 9 inches; *Wellingtonia gigantea*, 18 feet 3 inches high.

With the exception of a few of the largest, all the above were planted in the spring of 1861, and have since stood the winters uninjured, so that they may be considered perfectly hardy. There is a great number of smaller plants, very promising specimens, and among them are several good plants of *Picea nobilis*, also a very handsome young plant of *P. lasiocarpa*. Altogether there are about seventy-five distinct sorts of Conifers.

M. S.

ON THE SEEDING OF CONIFERS.—No. 2.

WELLINGTONIA GIGANTEA, PINUS EXCELSA, AND PINUS BANKSIANA.

WELLINGTONIA GIGANTEA is well known as a noble and handsome tree, both as regards shape and colour, and we can now judge what an effect it will have in the future landscape scenery of this country, particularly when judiciously placed on the sides of extensive slopes and ravines, so as to catch the morning and evening sunlight. My present intention, however, is only to allude to its cones, male catkins, and seeding, which has occurred here for the first time, and as I have not heard of its producing seeds elsewhere in England, a few facts and remarks may be of interest.

That the *Wellingtonia* has produced cones here and at many other places for several years is well known; but, so far as I am aware, little has been seen or said of its male catkins till within the last two years, or thereabouts. The cones with us are produced not in any particular number in a cluster, they are in twos, threes, and fives, and as many as a dozen or fifteen have been counted. The cones formed in the spring of 1865 became full grown in 1866, and the seeds were ripe by the end of August or beginning of September. All of them, however, do not arrive at maturity at the same time; but as soon as ripe, on a sunny, drying, windy day the scales of the cones open, and out fall the seeds if fully ripe, the scales closing up again at night and on damp days. The seeds are very small for such a gigantic tree; indeed but few Conifers produce smaller, but they are very numerous. The male catkins with us have hitherto been on different branches from those producing cones. They are pendulous, when fully expanded about the diameter of a grain of wheat, and equal to about three of these in length; the colour is a bright brimstone. Being full of pollen this is wafted about on dry windy days, as in the case of the Cypress and Juniper family.

PINUS EXCELSA.—This is a very distinct and beautiful spreading-branched conical Pine, with foliage of a shining, glaucous, bluish green. It forms a beautiful contrast with *Pinus insignis*, *Abies Douglasii* and *Menziesii*, *Cupressus macrocarpa*, *Picea nobilis*, *Webbiana*, *Nordmanniana*, *cephalonica*, *grandis*, *amabilis*, &c. No one can form an adequate idea of the beauty and distinct character of these trees without having seen them contrasted in an extensive collection of finely-grown specimens, such as we have here.

With us the cone of *Pinus excelsa* resembles the horn of a two-year-old heifer in shape, size, and length. It is from 10 to 12 inches long, and pendulous from the shoot of the preceding year—that is, the growth of the year is made beyond it. The seed ripens in the second year; at this time, therefore, there is two-year-old wood above the cones. These are covered with turpentine the first year, which gives them a grey colour, and they are very heavy; in the second year they are light brown. They are attached to the shoot by a stout, tough footstalk of about 2 inches in length till quite ripe, when they can be easily gathered.

PINUS BANKSIANA.—This species is more curious than beautiful, and would

seldom be chosen for a small collection, it being a slow-growing, straggling, stunted, weather-beaten-looking tree; but it certainly offers a great contrast when planted amongst a collection of robust, fine-foliaged, free-growing Conifers. Its singular, small, grey, crooked cones adhere closely to the wood, and all point in one direction. It is four years from their first appearance till the seed is ripe. The seeds are very small. There is a Banksian Pine here, having on some of its branches the crops of cones produced during twenty-seven years still adhering tightly to the wood.

Bicton.

JAMES BARNES.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

October 2nd.—As the year draws near to its close, and the shadows of the coming winter deepen in the autumn evenings, there appears a falling-off in the number and quality of the subjects produced at these meetings. From Mr. George Batley, of Rugby, came some seedling Zonale Pelargoniums, a designation now, unfortunately, meaning anything, as there is now such a great variety of the Zonale kinds—bicolors, tricolors, quadripartites, and subdivisions of these; in fact, there is a great and urgent necessity for some concise and yet intelligible classification of these Pelargoniums. Mr. Batley's varieties were Salmon King, with salmon flowers tinted and pencilled with carmine, to which a second-class certificate was awarded; Washington, bright scarlet, small trusses, but very free; Orange Perfection, orange scarlet, fine trusses, and very free, of the Nosegay section; and Queen of Beauties, pale rose, and very pretty. A Verbena, named Tom Brown, also came from Mr. Batley. It was of a rosy purple colour with a large white eye, but not in good condition. Mr. George Rawlings had six blooms of his seedling dark crimson Dahlia, John Sladden, which appears to be very constant. Mr. Bull had Lobelia Ruby, a variety of the Cardinalis section, having rich bright rosy crimson flowers, shaded with violet—this was awarded a first-class certificate; and from Messrs. E. G. Henderson & Son, came a number of seedling plants of Tricolor Pelargoniums, to show the process of developing their variegated foliage. Thus, on some of these plants would be seen two or three leaves that had broken off into variegation; on others fully one-half of the plant had done so. One variety, named Edwina Fitzpatrick, had been selected for the Floral Committee; it was very much in the way of Mrs. Pollock, but was considered to be inferior to it. The same firm also had Phlox Drummondii Louise Grelle, rosy carmine streaks with a white edging, an improved General Radetzky, the colours being much brighter; some flowers of Pomponne Dahlias, and some blooms of the autumn-flowering Crocuses—speciosus, mottled violet, and nudiflorus, deep lilac. Mr. Tillery, of Welbeck, Mr. Wrigley, and Mr. Stevens, had seedling Gladioli, but not in good condition. From Messrs. E. P. Francis & Co., of Hertford, came sprigs of Jasminum officinale aureum, a golden variegated form of the common white Jasmine, said to be from seed, but which does not appear to be so very uncommon according to statements made to the Committee. The gem of this meeting was a specimen of the rare and magnificent Cattleya Dowiana, from James Bateman, Esq., having two large flowers with pale yellow sepals and petals, and a large-veined claret-coloured lip.

Before the Fruit Committee, the "War of the Onions" waged furiously. From the gardens of the Horticultural Society came samples of Trebons, Nuneham Park, White Spanish, and Santa Anna; from Mr. Drewitt, the Nuneham Park; from Mr. Whiting, wonderful examples of White Spanish, large, handsome, and very heavy; from Mr. Dean, good examples of Danvers' Yellow; from Cutbush & Son, Nuneham Park; and from Mr. G. Scrymger, of Reading,

Nuneham Park and Reading. Messrs. Veitch & Son showed examples of the white and green Broad-leaved Batavian Endive, the latter under the name of Fraser's; Digswell Prize Endive, a good stock of Green Curled; and examples of the White and Green Curled.

October 16th.—A very small meeting on this occasion. From the gardens of the Society came a large group of Zonale Pelargoniums in pots, with good heads of bloom, and very effective they were. From Mr. W. Paul came a seedling Zonale Pelargonium named Ossian, having plenty of trusses of bright scarlet flowers, and a very close dwarf habit; from Mr. Morris, of Deptford, came seedling Pelargonium Maid of Kent, a strong-growing Christine, having large trusses of deep rose-coloured flowers, with white blotch; and from C. Leach, Esq., of Clapham Park, came examples of several varieties of Nerine, one of the most showy of which was *N. corusca* major, colour orange scarlet, a robust-growing kind; *N. rosea* and *N. humilis*, bearing flowers of different shades of pink and rose, were also pretty.

To the Fruit Committee, from Mr. Turner of Slough, came very fine specimens of British Queen Pears and Cox's Orange Pippin Apple. Apples and Pears were also shown by Messrs. W. Paul, Veitch & Sons, Leslie, Reynolds, and from the Society's Gardens; also from the latter came Mill Hill and Dutch Hamburgh Grapes, intended for comparison with some expected from Mr. W. Hill, of Keele Hall, which, however, did not reach the Committee. Mr. Carr, gardener to P. L. Hinds, Esq., of Byfleet, sent fruit of *Passiflora laurifolia*, or Water Lemon; and from Mr. Jonas, of Petworth, came a dish of fine Cranberries, which make an excellent preserve.

R. D.

REMINISCENCES OF THE PINK.

THE "old florist"—just such a one as you would picture to yourself as you perused a volume of the "Horticultural Cabinet," or one of the earlier Numbers of the "FLORIST," has not yet quite died out, although the species is rapidly becoming extinct. Here and there one can be met with, scarcely known without the boundaries of his immediate sphere, and yet a great man within it, a "man of mark" at the floricultural tournaments at which he occasionally figures, and among the florists of the district in which he resides. If he excels in the cultivation of any one particular flower, what an oracle he instantly becomes!—a veritable autocrat in matters of opinion respecting his "own" flower. And when a seedling is produced for the first time at a local show, how eagerly and anxiously is his opinion sought and waited for, and this, when once announced, is generally regarded as final. A "Floral Committee" in himself, his approval is tantamount to a first-class certificate in the judgment of the exhibitor, and a flower thus distinguished by him is pretty certain to become a "hot favourite" in contests for the coveted honour of "first prize."

During a country ramble I lighted on one of these worthies in a locality, somewhat unexpectedly (to me) prolific of them. He was one of Nature's gentlemen—rough in his exterior, but at the core a kindly, generous, and true man; manly, out-spoken, and sincere; loving Nature with an unselfish regard, and his immediate floral pets with a steady enthusiasm no calamity seemed to weaken. Sitting down with him and some of his brother amateurs to spend an hour or two, I was forcibly reminded of an illustration that appeared in one of the early volumes of the "FLORIST," entitled "Florists in the Olden Time." We were just such a cosy, comfortable-looking set, but with more of younger blood infused into our circle than appears in the illustration just referred to.

Each one had some reminiscences of his floral career to detail, and very instructive and oftentimes amusing they were. My host had been a grower of the Pink for nearly half a century, and he discoursed of flowers and events that have long passed away. No conservative was he, though; for he marched with the times, read with avidity anything bearing on the cultivation of his favourite flower, eagerly seized on any hint that he could translate into his cultivable process, and had in his collection all the leading flowers of the day. He could speak of the ancient distinctions of "purple-laced," "red-laced," "black and white," "roseleaf," and "large-leaved flowers;" of such varieties as Davy's Eclipse, of Lady Wharncliffe, of Davy's Duchess of Devonshire, Venus, and Countess of Bridgewater, Salter's Lord Nelson, Dakin's Burdett, of George the Fourth, Humphrey Cheetham, Beauty of Flora, Claudius, and other flowers that in their day and generation were the best varieties in cultivation of what old Thomas Hogg once termed "that pleasing little flower the Pink."

Perhaps in no flower have the conditions of successful cultivation so little varied during the last fifty years as in the case of the Pink. The season for planting out into the blooming-beds—September or October; the raised beds of 6 or 8 inches above the alleys "to enable the heavy rains to pass off during the winter;" the compost—yellow garden loam, sand, and well-rotted manure; the top-dressing—early in May; the time for piping—the end of June. These I learned were the rules observed at the commencement of the present century, and are acted on now.

Much of our conversation on this, to me, important occasion, had reference to the men who in their day had made Pink-growing famous, and gained a place of renown in their local annals, who are now passed away from amid their floricultural colleagues. How tenderly, and even lovingly, was the memory of that father of Pink-growing—old Thomas Hogg, touched on by these worthies! His "Treatise on the Growth and Culture of the Pink, Carnation, &c.," was prized by them as a very floricultural evangel; dear to them for the sake of its acceptable contents; dearer still as a memorial of the hero, as it were, who wrote it. Other names had their meed of praise, and sometimes a very little blame. Gratefully were Mr. Turner's great services recognised, and the patience and enterprise of Dr. Maclean, the raisers of so many of the very best modern flowers.

I asked for a list of the best twelve varieties for exhibition purposes, and was furnished with the following, being informed, however, that a very few newer flowers would be subjected to a further trial ere their merits or demerits were finally stated:—Beauty (Maclean), Clara (Maclean), Dr. Maclean (Turner), Exquisite (Turner), Invincible (Kirtland), James Hogg (Bragg), John Ball (Maclean), Marion (Turner), Mrs. Maclean (Turner), Rev. George Jeans (Turner), The Pride of Colchester (Maclean), and Tietjens (Kirtland).

The general hints that will assist in the successful cultivation of this flower were of the nature of the following:—The bed should be made in a part of the garden that is tolerably dry. The ground should be well trenched, and a soil, somewhat after the character of that already mentioned, should be prepared for the reception of the plants. Planting-out for blooming-purposes should be done late in September or early in October, as later planting will often affect the proper "lacing" of the flowers at the blooming season; and a liberal top-dressing of some well-rotted manure that has been passed through a sieve should be given at the end of April. When blooms are required for exhibition, three or four flower-stems only should be allowed to each plant, and the buds thinned out to about the same number on each plant. Water freely should dry weather set in, and the buds should be tied with a piece of matting to prevent them from bursting on plants that show a tendency to do this. The

pipings should be made about 2 feet from the ground, and the pipings should be covered by hand-glasses, and when rooted and capable of being removed, should be planted out into store-beds preparatory to being placed in their blooming quarters.

Coming away from the society of these veterans and from the hearing of their pleasant recollections, back to the great metropolis, in the midst of which I write, I could not help thinking of the wonderful charm a simple flower had for these men, and how powerful an influence it exerted on them; and this was but a reflex of the larger charm and wider influence flowers have, ever had, and ever will have, for the great family of human beings. Ever present with us, in cold and in heat, they are ministrants of no common order; and he who can so develop their beauties as to deepen the charm they possess, and to widen the influence they exert, if not a lover of his species, is at least consciously, or unconsciously, a benefactor to his race.

Quo.

OUR CONTEMPORARIES.

THE October Number of the BOTANICAL MAGAZINE has representations of the following plants:—

Calogyne corrugata.—Found by Dr. Wight, near Cortullam, in the Neilgherries, and believed not to have been introduced into this country before 1863, although figured several years previously. It also grows wild in Khasya. The flowers are in racemes of from three to six, with pure white sepals and petals, and a three-lobed lip, which is yellow, streaked with orange.

Cotyledon fascicularis.—A South African succulent, which is doubtless identical with the plant described by Aiton under the same name. It forms a very pale green, erect shrub, from 1 to 2 feet high, with thick fleshy leaves, 2 or 3 inches in length. The flowers are borne on stems from 10 to 20 inches in height, and are tubular, and about an inch long. Their tube is yellowish green and dull red, and the lobes of the corolla are of the same hue, margined with green.

Glyptostrobus pendulus.—A plant cultivated at Kew side by side with *Taxodium distichum*, was considered to be merely a variety of that species, to which it is strikingly similar; but Professor Oliver having examined the flowers this year, observed some points of difference, by which he has succeeded in referring it to the Chinese *Glyptostrobus pendulus*. It forms an elegant, straight-stemmed, slender tree 40 feet high, with horizontal or slightly-pendulous branches, which are deciduous in autumn.

Helipterum Cotula.—A West Australian Everlasting, seeds of which were sent from Swan River, by Mr. Drummond, to Mr. Thompson, of Ipswich. The plant grows from 6 inches to 2 feet high, and produces flower-heads half an inch to an inch across, in one variety golden yellow, and in another white, with a golden yellow eye.

Bolbophyllum reticulatum.—A beautiful-leaved Orchid, discovered by Mr. Thomas Lobb, Messrs. Veitch's collector, in Borneo. The leaves are from 3 to 5 inches in length, ovate-cordate, pale green, much reticulated with longitudinal and transverse nerves of a deeper green. The flowers are $1\frac{1}{4}$ inch in diameter, white, striped or spotted with reddish purple.

Musschia Wollastoni.—A Campanulaceous plant, introduced to Kew ten or twelve years ago from Madeira. It forms a large-leaved undershrub, from 2 to 6 feet high, with oblong lanceolate leaves from 1 to 2 feet in length, often purplish in colour, and has erect panicles, 2 feet in length, of large yellowish green flowers. It requires a cool greenhouse.

The FLORAL MAGAZINE for September and October contains representations of the following plants:—

Ivy-leaved Pelargonium Silver Gem.—The leaves of this variety are bright green, heavily edged with white, and while young are prettily zoned with pink. The flowers are larger than in the common form and of a lilac rose, blotched in the upper petals with purplish crimson. Its chief recommendation, however, is its foliage, which renders it peculiarly well adapted for the edgings of beds and for baskets.

Rose Mrs. Ward.—A Hybrid Perpetual obtained by Mr. Ward, of Ipswich, the raiser of John Hopper, from Jules Margottin crossed with Comtesse de Chabillant, and described as partaking of the qualities of both parents. "The outer petals have that brilliant rosy pink colour which the Countess possesses, while the centre of the flower has the colour of Jules Margottin; the petals are of great substance, thicker almost than those of any Rose with which we are acquainted. In shape also it is midway between the two, and we believe no better model for a Rose exists; the wood is stout and thorny, and the foliage large and ample, and the plant has the merit of being a good autumnal bloomer." If the good properties ascribed to this variety be verified by further experience, it must prove a first-class addition to our English Roses.

Urceolina pendula.—Described many years ago by Dean Herbert, and figured in the "Botanical Magazine" for 1864. The plant from which the plate is taken was found by Messrs. Veitch's collector, Mr. Pearce, in the woods of the Andes of Peru. It bears large umbels of drooping golden yellow flowers likened in shape to an inverted pitcher, and having the limb green edged with white.

Orchis maculata superba.—A fine variety of the well-known Spider Orchis found in Ayrshire, and which this year received a first-class certificate from the Floral Committee of the Royal Horticultural Society when exhibited by Messrs. Osborn, of the Fulham Nurseries.

Dipladenia amabilis, figured and described at page 209.

Clematis Rubella and *lanuginosa candida*.—The former was raised by Messrs. Jackman, of Woking, to whom we also owe those fine varieties Jackmanni and rubro-violacea figured in a former volume, and which were the forerunners of a new race of Clematises. *Rubella*, one of the finest of these, has been several times exhibited, and has received first-class certificates both from the Royal Horticultural and Botanic Societies. Its flowers are of a rich velvety reddish violet, and are stated to be more constant in having five or six petals than any of the other varieties. *Lanuginosa candida* is white, slightly tinged with purple towards the edges of the petals, and will prove useful for mixing with the richer-coloured varieties. It is believed to be of Continental origin. The mode of cultivation pursued by Messrs. Jackman in the case of these and other varieties is thus stated by Mr. George Jackman, jun.:—"When we put our specimen Clematises out, we plant them permanently out of pots in the open ground; in pots they will flower freely, but will not produce flowers in equal number or of so fine a quality, because the Clematis, having a fleshy root, cannot take up sufficient moisture to develop its flowers so finely as in the open ground. The soil they luxuriate mostly in is one composed of rich manured loam, and when possible fine calcareous sand. They should be pruned back in the spring, about February, leaving a quantity of good breaking buds; but there is this difference—some kinds will only flower on the old well-ripened wood of last year's growth, therefore discretion must be used. *C. Standishii*, *Fortunei*, and all the varieties of *azurea grandiflora* are of this character; while others, such as the hybrid seedlings of which *C. Jackmanni* is the type—*rubro-violacea*, *rubella*, *Prince of Wales*, and all the *viticellas*—will grow and flower quite as well and as vigorously on the spring's growth, as the other

varieties do on the older wood. After pruning, the surface should be stirred up, and some good rotten manure forked in round the roots. By giving attention to these simple rules, any person may have exuberant growth, large flowers, and brilliant colours."

Rose Mrs. John Berners.—A new Hybrid Perpetual with very compact rosy pink flowers, bright and distinct in colour. The name of the raiser is not stated.

The August and September Numbers of *L'ILLUSTRATION HORTICOLE* contain the following plates:—

Elais guineensis.—The Oil Palm of Western Africa, an ornamental species, which has been known for considerably more than a century. It is the tree from the fruit of which is obtained the palm oil of commerce, annually imported into this country to the value of about £1,750,000. The tree grows from 20 to 30 feet high, and has a stem from 12 to 16 inches in diameter, and naked for one or two-thirds of its height, though deeply marked with the scars resulting from the old leafstalks dropping off, and above this point it bristles with their remains, terminating in a crown of pinnate leaves from twelve to twenty in number, and varying from 10 to 15 feet in length. The species also occurs in tropical America, whither it is supposed to have been introduced, but at what date is uncertain.

Camellia Mrs. Dombtrain.—Flowers large, with very small petals, closely and regularly imbricated, of a delicate rose colour, becoming paler towards the edges, and finely veined with a somewhat deeper rose. The leaves are divided by the midrib in two unequal parts.

Jacaranda digitaliflora albiflora.—A variety sent to M. Verschaffelt from Rio de Janeiro, and having white flowers with a yellow throat.

Alnus glutinosa aurea (Golden-leaved Alder).—A variety of the common Alder, in which the leaves exhibit a handsome golden variegation, and which promises to be useful for pictorial effect in groups or planted singly on a lawn. It sprung up in a seed-bed in the nurseries of Madame Vervaeke & Son, at Ledeborg, and is in the hands of M. A. Verschaffelt, of Ghent.

Rhododendron Archiduc Etienne.—A hardy hybrid variety raised by M. A. Verschaffelt. The trusses, as well as the individual flowers, are large; the latter are white, densely covered in the upper petals with a multitude of small dark chestnut brown spots, which at a little distance appear as if forming one large blotch, intersected lengthwise through the middle by a white vein. The spots do not extend so far as the margin of the petals, and as they approach it they are set further apart; they also exist at the base of the lower petals.

A group of Pomponé Chrysanthemums concludes the September Part.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY.—The number of persons who visited the gardens at South Kensington on the Wednesdays of September, on which days the grounds were free to the public, was 21,283; but the experiment of free admission is not likely to be repeated this year on account of the annoyance caused by disorderly boys who resorted to the gardens to play. At a joint meeting of the Floral and Fruit Committees on the 2nd of October, at which Messrs. John Veitch, Standish, Turner, Fraser, and some other leading nurserymen and exhibitors attended, the proposal of holding a four-days Exhibition in 1867, which had been mooted at the previous meeting, was discussed and approved of,

provided the prize list be made sufficiently liberal to compensate for the increased risk of deterioration to the plants, involved in the longer duration of the Show, and the greater expenses entailed on the exhibitors. We may add that the project of holding a show next year at Bury St. Edmunds in connection with that of the Royal Agricultural Society has been abandoned, in consequence of the only site that could be devoted to the purpose being unsuitable.

PERPETUAL ROSES.—In the last Number of the "*Revue Horticole*," M. Lebas remarks that a large proportion of the Perpetual Roses after once blooming only produce a few

flowers at intervals, and are not, therefore, constantly in flower, as some persons might suppose from their being termed "Perpetual;" and he points out the following means of obtaining from nearly all such a good second bloom: When the first bloom is not quite over, prune the Rose trees rather short, and even disleaf the parts which are retained. That being done, give a good watering so as to thoroughly moisten the soil about the roots. New shoots will soon push, and about two months afterwards they will have flower-buds at their ends. This mode of proceeding, he remarks, will, however, only prove successful as regards a second bloom in a tolerably warm climate, for in others the weather will become too cold before the buds open. In this case, though a second bloom cannot be obtained by the above proceeding, bloom can be secured at two different periods by planting the trees rather closely together, and, when they commence to flower, pruning every other one, which will have the effect of retarding the flowering of the plants so treated.

In this way, after an interval of about seven weeks, say in the end of August, there will be Roses in as fine bloom as in the end of June, or beginning of July.

DIOSCOREA DECAISNEANA.—A considerable amount of controversy has been going on in the French horticultural press as to whether this is a species or merely a variety. Whichever it may be, M. Carrière records the fact that whilst nearly all the plants of *Dioscorea batatas* prove male, those of *D. Decaisneana* produce only female flowers; and he concludes that if the two were grown together seeds would probably be produced, from which new varieties might be obtained.

OBITUARY.

WE regret to have to announce the death of DR. SCLECHTENDAL, Professor of Botany and Director of the Botanic Gardens at Halle, and who was so well and so favourably known to botanists through his editorial labours in connection with the "*Linnaea*" and the "*Botanisches Zeitung*."—(*Gardeners' Chron.*)

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Stove.—The object here will be to keep up as gay an appearance as possible during the dreary months of winter. All the large specimens *Clerodendrons*, *Allamandas*, *Echites*, *Achimenes*, &c., should be removed to any spare house where a little heat is kept up, to winter. This will give room for the various plants which, having been struck last spring, and grown on through the summer, will now be in condition to bloom freely through the winter; let them be fully exposed to light. **Orchids.**—Unless any plants show indications of a new growth, the moderately cool and dry treatment must be persevered in; such, however, as are commencing to push must be potted at once and placed in more heat. Keep plants in bloom in a dry part of the house.

GREENHOUSE.

Mixed Greenhouse.—As the plants are staged for the winter, let them have a surfacing of fresh soil; give air daily, and apply fire occasionally when wet, to dry up damp, and make the air of the house healthy. But little watering will be necessary at this season, except for such plants as have been a long time without shifting; let the watering be done in the morning, so that the house may get dry before closing-up time. *Camellias* and *Azaleas*.—Keep cool and airy, unless early blooms are desired. A few free-blooming *Azaleas* may be placed in a moderately warm house, if wanted to bloom by Christmas. *Cinerarias* will now be growing very fast; fumigate if aphides are detected. This should be done with care, the foliage being very tender; burn-

ing a little tobacco two successive nights will be most effectual. Those for winter flowering will now be throwing up their blooming-spikes, and may be selected from the general stock in the pit, and placed in front of the greenhouse. Shift any part of the young stock that is filling the pots with roots. *Heaths* and *Epacrises*.—Properly speaking, these plants should have a house to themselves, for they neither arrange well nor yet thrive with other plants. At this season they will require abundance of light and air. Do not apply fire heat to them unless the frost is very severe, and we may say at once none will be required this month, unless by day, during a continuance of wet weather. *Pelargoniums*.—Cleanliness during the winter has much to do with the successful cultivation of the *Pelargonium*. The glass, stages, and every part of the house should be clean, as well as the pots and everything about them. The house should also be kept dry, and not too cold at night. Give plenty of air on other occasions, and so that cold draughts may be avoided; let the plants have plenty of room, keep them clear of dead leaves and green fly, and success will be tolerably certain.

CONSERVATORY.

As the entire stock is now in the house, air must be given on all favourable opportunities, to harden the plants well before winter. It will help to prevent mildew; and by applying a little fire on wet days at the same time, a close damp atmosphere, which is at all times injurious to the health of plants, will be avoided. *Chrysanthemums* should be brought in as they come into bloom, and with *Epi-*

phyllums, Salvias, &c., will help to make a good display throughout the month. Violets, Mignonette, &c., are likewise indispensable.

FORCING.

Forcing-houses.—Where *Grapes* are wanted in April, the sashes should be at once put on, and the borders, if outside, covered with new warm leaves, 1 or 2 feet thick, which may be thatched, to keep them dry and from blowing about. Dry fern or stable litter will answer the same purpose; we ourselves prefer leaves. The temperature must be very mild at first—45° will be ample by night, and this heat may be kept up without fires for some time; in three weeks a little fire may be put on by night, and during wet or very cold days. As leaves can be obtained, it will be a good plan to cover the whole of the early vinery borders and thatch them; the leaves will keep them warm and dry in the winter. *Cucumbers.*—Keep up a steady bottom heat, as recommended last month; the top heat should not be much under 70°. Give air at all opportunities. Keep the Vines thin and well exposed to the light. Surface the pots or boxes occasionally, and water with liquid manure; if mildew appear, dust a little sulphur over the spots, and keep rather a drier heat for a few days; fumigate for aphides. *Pines.*—Let the fruit now ripening be fully exposed to the light, to give it colour and flavour. Very little water will be required, except to those just commencing to swell their fruit. Keep the stock to show fruit at Christmas dry and cool; the young stock grown in pits, &c., should likewise have the top moisture lessened by some means, as, if not prevented, too much damp at this season has a tendency to rot the hearts in the winter. Protect from cold by night by sufficient coverings, and let the linings, &c., be maintained, so as to allow a mean temperature of 60° to the plants. Where hot water is employed, keep up the same heat by applying fires.

KITCHEN GARDEN.

It is now too late for planting. What remains in the way of Cabbage, Lettuce, &c., will be better left till spring, unless the weather be very mild. However, there are various things required at this season. In the first place, never allow any ground to be idle; dig or trench it immediately it become vacant. Continue to hoe between late-planted crops—Cabbage, winter Lettuce, Spinach, &c.; a good dressing of soot on a wet day will do them good.

FRUIT GARDEN.

Hardy Fruit.—All kinds of wall, orchard, and bush fruits may now be planted, and the preparation of new borders proceeded with by removing all or a part of the old soil; do not work the new soil, however, when in a wet state. Let the borders be shallow and well-drained, the loam of medium texture, or rather inclined to be heavy than light, and use none

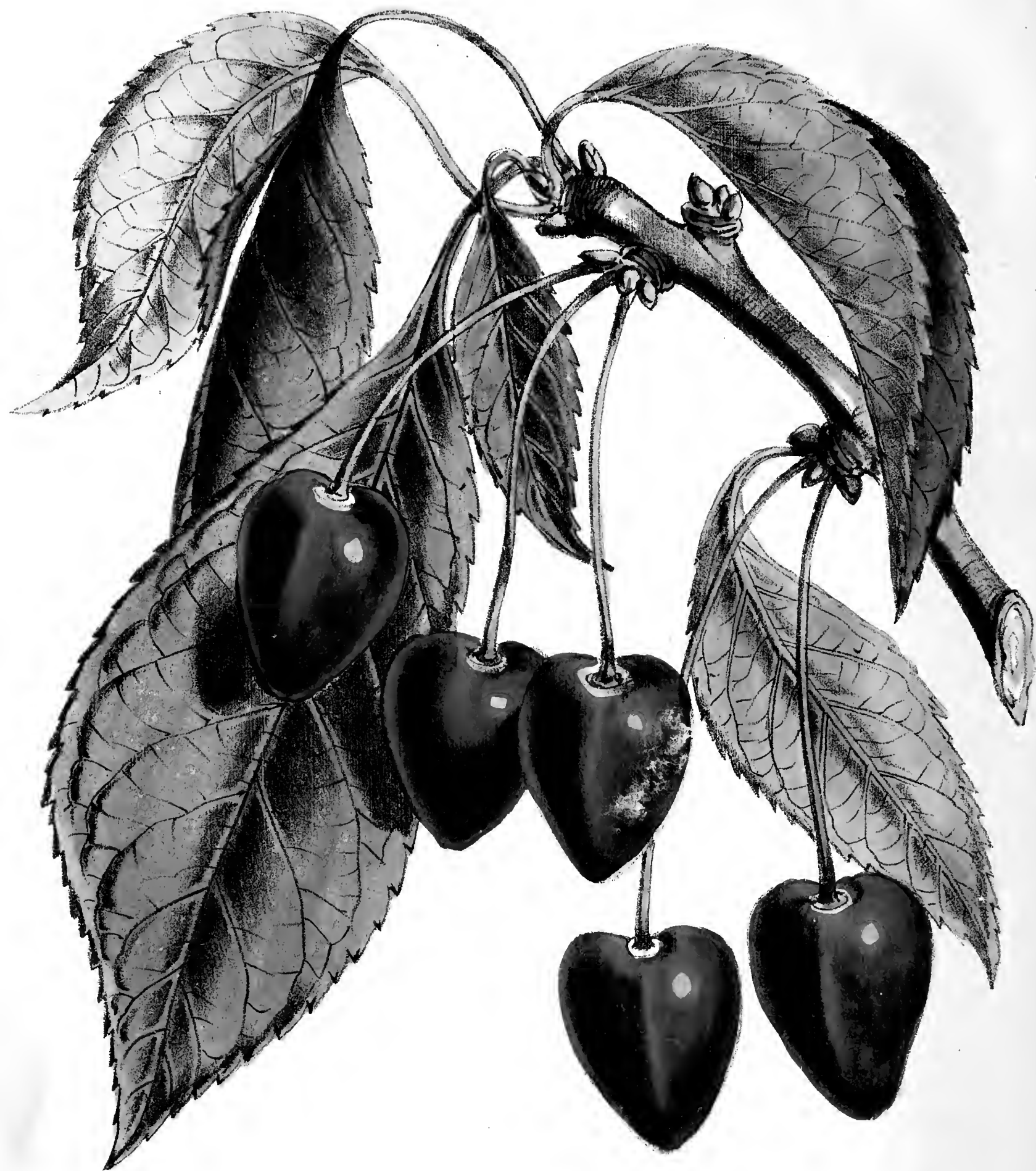
or but little manure. Pruning may be commenced.

FLOWER GARDEN AND SHRUBBERY.

What remaining beds continue to make a show of bloom should be preserved; the rest should be cleared away at once to make room for Anemones, Dutch bulbs, Crocuses, &c. Continue to pot choice plants for next year. Much of the beauty of the garden early next season will depend on the care which is taken of Geraniums, standard Fuchsias, and a number of other things. When the rubbish is cleared away, well sweep the Grass, and put the walks in good trim, by frequently rolling them, for the winter. *Roses.*—If not already looked over to decide on renewals and additions, lose not a day. Do not allow one ill-grown plant to stand in a conspicuous situation.

FLORISTS' FLOWERS.

Auriculas.—Keep the plants in a northern aspect for another month at least; they should be elevated above the ground. Care must be taken not to over-water them at this season. The plants will require to be looked over frequently, for the purpose of removing all dead foliage as it appears. Auriculas are not interesting plants at this season; they must not, however, be excited into growth now; on the contrary, they should be nearly at rest. *Carnations and Picotees.*—Give plenty of air but not much water; the hardier they are kept the better. Damp must be avoided, and the plants must be kept perfectly clean. *Hollyhocks.*—Now is the best time for procuring cuttings of these from the crown of the root, for the reason that they strike more readily and make the best plants. The summer-struck cuttings will be filling the pots with roots by this time, and should be repotted. Strong early plants will winter in almost any situation, if the season is not too wet. *Pansies.*—These either having been potted-up or planted out for blooming, as previously directed, will require but very little attention for a time. Those in frames should be grown as hardy as possible, by keeping the lights off whenever the weather is fine, tilting them back and front at other times. Cuttings may still be put in for the second or summer bloom. *Pinks.*—Examine the beds occasionally for grubs, which are often very destructive at this season. If a few plants of each variety have been potted as recommended last month, they will come in very useful for filling up any vacancies made by insects or other causes. Loosen the surface of the beds when dry, to prevent the soil from becoming green and sour. *Tulips.*—Plant at the first favourable opportunity, choosing a fine dry day, when the soil is in good order. The bed may be protected for a short time by any temporary covering, if the weather is wet, to keep the soil dry till a fair day arrives. The offsets should have been planted in October. Use fine sandy soil about the roots.



M. A. D. del.

Bigarreau Ludwig

LUDWIG'S BIGARREAU CHERRY.

WITH AN ILLUSTRATION.

LUDWIG'S Bigarreau Cherry, which forms the subject of our present illustration, was introduced by Mr. Rivers, of Sawbridgeworth, and it was from a tree fruited in one of his orchard-houses in 1865 that our figure was taken. This variety is remarkable on account of its shape, which is long heart-shaped, being much more so than any other Cherry with which we are acquainted. It is a fine early Bigarreau, ripening just after the Early Red Bigarreau, in the end of June and beginning of July. The flesh is pale yellow, very melting and juicy, and much more tender than Bigarreaus usually are.

GESNERA ZEBRINA AND SPLENDIDISSIMA.

THE dry parched atmosphere of dwelling-rooms is very injurious to plants, particularly during the autumn and winter months when strong fires are kept up. Valuable plants that would suffer by being kept a few days in such an atmosphere should on no account be used for this purpose. Plants that do not suffer by this treatment should be as much as possible employed for in-door decoration. There are numerous plants well adapted for this purpose; I find these Gesneras very useful. The roots are all fresh potted in April, and then placed in one of the vineries at work. I put one root into a small pot, three into larger pots, five into larger still, and as many as a dozen roots into very large pots. By this plan I have plants of all sizes. I have the pots well drained, and I use a compost of nearly equal portions of loam, peat, and leaf mould mixed up with plenty of coarse river sand.

The plants soon begin to grow when put into heat. As soon as they are a few inches high they should be tied up neatly to stakes, and kept tied up from time to time as they advance in growth. I never shift them after they are potted. Gesnera splendidissima comes soonest into flower, generally in September, and lasts till December. G. zebrina begins to flower in October and lasts till January. They both withstand the dry atmosphere of rooms for weeks; and as the roots are generally full grown by the time they are in flower, they can be dried off when they are out of bloom on any shelf in the coolest part of the stove, and can remain there until the time for potting, in April, comes round again.

M. SAUL.

REMARKS ON FRUIT TREE CULTURE.—No. 15.

THE young maiden Apricot trees should be planted as before recommended as soon as maturity of growth is indicated by the ripening and falling of the leaf, which is generally about the middle of October. Let them be headed back in March to a length of 6 inches or thereabouts, according to the position of the buds; a transverse cut should be made at the *back* of the extreme bud, and the knife should be brought out a quarter of an inch above it. This is often disregarded by young practitioners, which induces me to be more particular in mentioning it minutely; for it must be remembered that the tree will always have to face one way, and this must be kept in view both in the training and pruning in these preliminary stages of preparation, and every cut must be made at the back of the shoots, not only that the cuts may be hidden, but because they are more likely to heal over without injury when they are not

exposed to the heat of the sun, by which the wood is so much hardened that the process of healing is very much hindered, and so much so in large cuts that the wound often does not heal at all, but a decay ensues, which in time penetrates to the interior of the branch and causes premature decrepitude in such branches.

From the six-inch stem as a starting point, train out five shoots, one in the centre and two on each side, all of which should be as distant from each other as possible—never by any chance training two shoots from one point; and as they generally break pretty freely, there will be no difficulty in selecting shoots as far apart as possible. This I would call laying a foundation for a free and unobstructed flow of sap. Trees which have been continually headed closely back, so as to have the shoots radiating from one point, become in time a mass of hard dead knots, and the sap is obliged to make for itself a less obstructed channel by an unnatural enlargement. Care must be taken to secure the young shoots from injury, and the centre one should be stopped when 6 inches long; but the side shoots may be allowed to grow on without stopping unless they throw out laterals towards the extremities, in which case they may be stopped at the laterals, but this is not material so long as there is a foot in length of clear wood free of lateral growths; indeed I often think it best to let them grow freely, as it induces the formation of roots, and by attracting the sap from the centre tends to produce an enlargement of the wood, which in the after stages of growth contributes very much to facilitate the equable distribution of the sap.

As there is always a very strong tendency in all fruit trees to throw the greatest strength into the centre of the tree on account of its more vertical position, the centre shoot which was stopped at 6 inches must be kept under rigid surveillance, and the effect of stopping will be to start the lateral growth, two shoots of which may be selected and trained out, one on each side, but not a centre one; these may be allowed to run a foot or so, but must be constantly stopped and checked from running away with the lead, which they invariably do if left unchecked.

The next winter pruning will be very simple—merely to shorten the four side shoots to 1 foot in length, and train them carefully out, the two lower ones nearly horizontal; and with regard to the centre, if the two laterals have formed good sound wood likely to be useful, they may be left and shortened to 6 inches, but if long-jointed, pithy, or unripened, cut back below them, for the purpose of obtaining two good shoots to train out in the following summer.

We have now a good foundation for carrying the leading fruit-bearing branches; and as the shoots are as it were lifted up from the starting point, I maintain that trees so prepared are far more likely to produce a sound and healthy growth than such as are closely headed, and in which the shoots all spring from one point in a cluster, which I have often thought may be one amongst the probable causes which contribute to the still-mysterious death of large branches, which in this case may be said to be crowded or crushed out of existence by the superior strength of some of the leading branches.

In the third year of growth these five or six shoots, as the case may be, will produce ten or twelve leading branches, and as they are destined to carry the fruit-bearing shoots in succeeding years, and at the same time will become the principal channels through which the sap will be equally distributed over the tree, it will be necessary to take some little extra care in the selection, each shoot being restricted to carrying two leading branches, one from the extremity and the other from near the base of the shoot, all the others being rigidly removed in a very young state, for two reasons: first, because it is not intended that these young shoots should carry fruit, even supposing that the extra shoots would produce blooming spurs; next, because it might otherwise be difficult to induce

a shoot to break well at the base, and also because the growth being thereby all confined to these permanent branches, they become greatly strengthened and enlarged, which is an important matter in these early stages. It is true that large and vigorous wood will not carry fruit, but the shoots under consideration are not destined to do so, but to elongate themselves and carry the fruit-bearing branches from the centre to the extremities; and therefore the larger and more vigorous we can grow the wood at this stage the greater probability will there be that in the after stages of growth we shall have a strong and healthy development to operate upon, which is so far satisfactory, inasmuch as it is always better to deal with a growth which requires a curb, than to coddle and nurse up a weakly one.

Redleaf.

JOHN COX.

BEDDING ROSES.

SOME people have an idea that any Rose is a good pole or wall variety that grows strong enough to run up a pole or wall, and that any Rose which is of a striking colour and free-flowering is good for bedding. In passing, I may observe that a pole or wall Rose should be short-jointed, break well at all the eyes with foliage or bud-stalks, and that its side branches should not grow longer than 12 inches without flowering.

My present purpose, however, is to speak of bedders. These should be Roses of moderate growth, of striking colours, and of tolerably erect habit, requiring no props. Cardinal Patrizzi is a perfect type of a bedder. Let us suppose that you have parterres, and wish to have each filled with a separate sort on the principle of Tom Thumb Pelargoniums, I think these would gratify your wishes.

HYBRID PERPETUALS.—Cardinal Patrizzi, deep rich purple crimson; Triomphe d'Angers, brilliant velvety red purple; Géant des Batailles, scarlet crimson; Le Rhone, ruddle red; Jean Bart, the nearest to lake; Pauline Lanzezeur, bright crimson; Louise Margottin, delicate satin pink; Prince Henri de Pays Bas, brilliant crimson, folded like a ball; Madame Alfred de Rougemont, white; Vainqueur de Goliath, crimson scarlet; Madame Bonnaire, white, with peach blush; Duke of Wellington, rich crimson, with dark shade; Belle Normande, pale rose shaded with silvery white.

BOURBONS.—Dupetit Thouars, beautiful crimson; Queen, buff rose.

CHINA.—Cramoisie Supérieure, rich velvety crimson; Eugène Beauharnais, amaranth.

TEA.—La Boule d'Or, egg yellow; Auguste Vacher, very curious; the petals are pure deep gold at the base, and pure bright copper at the edges. The colours are half-and-half without confusion.

GALLICAN.—The only good variegated Roses suited for bedding-purposes are Œillet Parfait and Perle des Panachées. The former is by far the best variegated Rose known, and most beautiful.

The best Roses of a very dark nature for bedding-purposes are Alexandre Dumas and Vulcan, both Hybrid Perpetuals.

Beds of the above, with from twelve to twenty plants in each, would look well, and they are best suited to the purpose of any that I know.

Okeford Fitzpaine.

W. F. RADCLYFFE.

THE HOLLY.

How fine the Hollies are here this season, and how early the fruit is ripe! Trees at this place had ripe berries two months ago, and the birds have now

nearly destroyed all the earliest-ripened berries. By Christmas I anticipate we shall have but a small quantity of Holly with ripe berries left for decorative purposes. Are Hollies generally loaded with fruit this season? or are those here exceptional as regards the early maturing of their fruit?

Wrotham Park.

JOHN EDLINGTON.

DIANTHUS.

MR. J. EDLINGTON, of Wrotham Park, writes in the Number for November on the value of *Dianthus Heddewigii*, and I fully agree with him as to its usefulness; but for my own part I have found none to equal *Dianthus hybridus*, or *atropurpureus*, and the spotted varieties of *Dianthus nanus*, for standing the weather and for general and prolonged flowering. I find that *Dianthus Heddewigii* is looser in its flowers than the sorts which I name. Nothing can equal *Dianthus atropurpureus* and the beautiful spotted sorts for cut flowers and for dressing flower-dishes to stand on tables, they remain so long fresh and stand so erect. By sowing early in February, as recommended by Mr. Edlington, they will flower till hard frost comes on. I have plenty just now (November 14th), in flower. When there is a continued late demand for cut flowers I do not know of a more advantageous plant.

Dalmeny Park.

WM. MELVILLE.

TRANSPLANTING FRUIT TREES.

To secure satisfactory results in transplanting fruit trees, the following important matters require to be carefully attended to:—1st, the Season for Planting; 2nd, the Proper Age of the Trees; 3rd, Lifting the Trees; 4th, Preparing the Soil; 5th, the Situation for the Trees; 6th, Planting; and 7th, Mulching.

1st. THE SEASON FOR PLANTING.—This is a question respecting which there is some difference of opinion even among gardeners. The greater number, however, agree that the best season for transplanting fruit trees is the autumn, immediately after the fall of the leaf, before the soil has parted with its summer heat. The tree is then in a dormant state. By transplanting at this early season, whatever wounds have been made in the roots begin to heal over, and sometimes spongioles are protruded, and by the time the spring arrives the tree is already somewhat established and ready to commence its growth. In mild open weather, planting may be performed throughout the autumn and winter, and until late in spring, but early planting—in the autumn—is decidedly best, and it should be always done then when possible; for, though trees may be planted at all seasons, except, perhaps, midsummer, and with success when proper care has been taken in performing the operation and in attending to the trees afterwards, still it must be remembered that the sun has great power in spring, and drying winds often prevail, which tend to exhaust the young branches of trees of their moisture.

2nd. THE PROPER AGE OF THE TREES.—Fruit trees of all sizes and ages may be transplanted with considerable success, but where health, vigour, and duration are required, young trees are decidedly the best. Young trees of stiff, vigorous habit, make wood rapidly, and soon arrive at a state of healthy and long-continued productiveness.

3rd. LIFTING THE TREES.—This is a very important operation. We must always bear in mind that it is by the delicate and tender points of the roots that trees take up their food, and our chance of success is lessened by every

one of these points that is bruised or injured. If we could remove trees with every fibre entire they would scarcely show any signs of change of position. Though it may not be possible always to get every root entire, we may with care save the greater part of them. Trees should always be planted as soon after they are lifted out of the ground as possible.

4th. **PREPARING THE SOIL.**—The proper preparation of the soil is the groundwork of successful fruit-tree culture. Whether a transplanted tree shall struggle several years to recover, grow moderately after a short time, or at once start into vigorous growth, depends in no small degree upon the amount of care, labour, and expense the planter is willing to bestow on the soil in preparing it for the reception of the trees. As soils vary much not only in different parts of the country but often in the same localities, great practical knowledge is required to prepare every description of soil fit for fruit trees. Soils of a strong loamy nature are in general favourable for most kinds of fruit trees. On such soil, if the climate and situation be favourable, most kinds of fruits will succeed well with little or no expense for labour in preparing it. Sandy soils are easily worked, and fruit trees in some places do pretty well for a few years in such soil, but in general they are short-lived and soon fall into decay. When the subsoil is of such a nature that it can be deepened for the roots to penetrate, with a little labour it may be made to grow fruit trees well. Clayey soils are, when well-drained and the clay is not in excess, good fruit soils. They are usually strong and deep, and rather difficult and heavy to work. Fruit trees, such as the Apple, Pear, Cherry, Plum, and Apricot, that do well in these soils, are generally very free from disease and very productive. In days gone by, when the advantages of thorough drainage were not so well understood as they are now-a-days, fruit trees in clayey soils often suffered from canker brought on by the great quantity of water contained in the soil. Deep soils are not unfavourable to the growth of fruit trees if they are thoroughly drained, and the mechanical condition of the soil is such that the sun and air can freely penetrate it. It is only when from imperfect drainage they become full of water, and thereby shut out both sun and air, that they are unfavourable to the growth of fruit trees. All soils, of whatever nature, should be of good depth for fruit trees. In shallow soils, especially those which are sandy, fruit trees suffer much in hot weather from want of moisture, their vigour is checked in consequence, and they become feeble in growth and are comparatively short-lived or unproductive.

5th. **THE SITUATION FOR FRUIT TREES.**—All deep valleys and low-lying places are the worst situations for fruit trees, as the cold air settles down in these places in calm frosty nights, and the buds and blossoms are frequently destroyed. Elevated ground, if not very exposed to cold sweeping winds, is in general the best situation for fruit trees.

6th. **PLANTING THE TREES.**—If the borders have been properly prepared, and if good trees have been carefully lifted, the operation of planting itself is a very simple one. A hole sufficiently large should be made, and the soil at the bottom should be left in a little hill for the roots to rest on, and not left in a hollow as is often done; the roots will then extend in their natural position, not being forced to turn up at their ends. The roots should then be all carefully examined, and all the wounded parts neatly cut off. The soil should then be carefully put in, taking care to cover every fibre and to fill up all the spaces between the roots. This is a very necessary point to be attended to. When the soil has been put in to the depth of a few inches over the roots it should be trodden gently all over if it be dry, as the soil always should be in autumn or winter planting. Then complete the planting by filling up level with the surrounding soil. On heavy clay soils deep planting should be guarded against.

On light soils I have found it beneficial. In general no tree should be planted deeper than it formerly grew. When planted the tree should appear just as deep as before, but standing, if the soil is heavy and retentive, on a little mound 2 or 3 inches higher than the surrounding ground; and if the soil is light and naturally well drained the tree should be in a little hollow 2 or 3 inches deeper than the surrounding ground level. By leaving a hollow in light soil, the rains in summer, instead of running off, get to the roots. If watering be necessary, it is also done best if the ground is hollow.

7th. **MULCHING.**—This is an excellent practice with transplanted trees, and more especially for those that are removed late in the spring. Very many trees in a dry season fail at midsummer, after having made a fine start, from the parched condition of the earth at the roots. Watering frequently does little good to such trees, but mulching when they are planted obviates the necessity of watering in dry seasons, and promotes growth under all circumstances.

When the foregoing points have all been properly attended to, there need be no doubt as to fruit trees succeeding well.

Stourton.

M. SAUL.

MISCELLANEOUS NOTES.

IN the report of the Meeting of the Floral Committee of the Royal Horticultural Society held on the 16th of October, I observed that a seedling *Zonale Pelargonium* was exhibited by Mr. William Paul, under the name of *Ossian*. Now, we have already one very excellent variety under the same name, and it is fast becoming popular in this part for its good bedding qualities. It is somewhat of a *Nosegay* in character, has good zoned foliage, and is a very free bloomer. The colour of the flowers is deep scarlet, and the bottom petals have a considerable shade of violet. It is, in fact, a near approach to *Glowworm*. With so good a variety as this already out, I think it would be undesirable to issue another of a similar character under the same name.

Referring also to the report of the same Committee of September 4th, I find that a first-class certificate was awarded to Mr. George, of Stamford Hill, for a *Tropæolum* named *King of Scarlets*. Now, I have had a variety under the same name for the last eighteen months, and a most beautiful bedding plant it is; the colour is deep orange scarlet, the growth moderate, and the kind is altogether the most effective I have seen for decorative purposes. The flowers are thrown well above the foliage, and in this respect it is much superior to many of the *Tom Thumb* varieties. One of the most pleasing combinations I have had this season was a large tub filled with equal quantities of the *King of Scarlets* and *Convolvulus mauritanicus*.

A word now about Potatoes. Like Mr. Radclyffe I have always allowed the tubers I intend for seed to lie upon the ground till they are quite green, and until the present year I had experienced no unpleasant results from doing so. When I took up my crops this season a diseased tuber was a rare exception. My garden being in a warm, dry, and sheltered situation, the bulk of the Potatoes ripened early, and although the haulm was very much blighted, yet the tubers were apparently free from disease. The store Potatoes were housed dry, and scarcely one has proved bad, while the seed Potatoes were thrown out upon the ground, and there they remained until the end of September, when they were gathered up and placed upon shelves in sheds and outhouses, where they could get both air and protection. By that time one-fourth had become diseased, and many more have since rotted. Of some sorts I have lost quite three-fourths of

my seed stock, and yet none of the tubers which were stored dry have rotted, and this is the general experience of greening seed Potatoes in this neighbourhood in the present autumn. I was very sorry to see the other day, that of a large stock of seed Potatoes, many of them new and expensive sorts, belonging to a nurseryman, and which had been laid out to green and were then stored under the shelves of a long plant-house, nearly three-fourths were rotten, although not a single tuber appeared to be diseased when they were dug up. After this year's experience I think I shall be somewhat chary of greening seed Potatoes in the future.

There can be no doubt that the disease has presented itself among the later varieties in as virulent a form as ever, and this I consider is attributable to the exceedingly wet autumn; for whatever may be the primary cause of the disease, it is certain that nothing so much aids its development and propagation as an excess of moisture.

Southampton.

A. D.

GUILDHALL SHOW.

TRULY it was a pleasing sight which the old civic hall of the City of London presented on the morning of the 13th of November. Usually so cold and dismal at this season of the year, it had been galvanised into a new life by the holding within its walls of the usual autumnal meeting of the United Horticultural Society—a City horticultural organisation. All the gildings and trappings that made the ancient hall look smart on the recent occasion of the Lord Mayor's banquet had been allowed to remain; an outer hall temporarily erected for the purposes of the civic feast bristled with men in armour and sundry quaint devices, and to reach the temple of peace and mercy within, for a charitable bazaar was combined with the Show, you had to pass through a kind of military chamber of horrors peopled with the remnants of a past age. Within the great hall the scene was charming in the extreme. Flowering and fine-foliaged plants were ranged in stages along the sides of the hall, intersected by the stalls for the Fancy Fair in aid of the Albert Orphan Asylum. These were beautifully furnished and arranged, the gay and striking colours so plentifully presented contrasting nicely with the sombre hues of the fine-foliaged plants. Two lines of tables running down the centre of the hall contained cut flowers, bouquets, table decorations, &c. The fruit, of which there was an excellent show, was arranged in one of the ante-chambers of the Chamberlain's apartments.

There was considerable difficulty in picking out the various groups of pot Chrysanthemums, as, in order to secure effect, they were commingled in the formation of the groups before alluded to. Mr. George, gardener to Miss Nicholson, of Stamford Hill, had a group of plants of large-flowering Chrysanthemums that had been very skilfully managed. The following were very fine:—Golden Christine, Alma, Vesta, Christine, Princess of Wales, Beauté du Nord, Annie Salter, Golden Hermione, and Lady Hardinge. A group of Chrysanthemums in pots, shown by J. Crute, Esq., of Holloway, the President of the Society, was much admired, the flowers being remarkably fine. Mr. Forsyth, of Stoke Newington, also had splendid plants of Pompone kinds. The most noticeable were Cedo Nulli, Golden Cedo Nulli, Bob, Golden Aurora, and White Trevenna.

Of cut blooms there was a goodly number, and of something more than average quality. Looking along the stands of blooms one could not but be struck with the very large preponderance of light-coloured and yellow flowers, and the almost entire absence of lively-coloured red and crimson flowers. If the colour of the Pompone variety Bob could only be associated with flowers

of the substance and build of Golden Beverley, Jardin des Plantes, White Globe, and Princess of Wales, then would the florist have made a wonderful step in the direction of improving the Chrysanthemum. The following cut blooms were fine indeed:—White Globe, Princess of Wales, Golden Beverley, Nil Desperandum, Gloria Mundi, General Slade, White Beverley, Cherub, Rev. J. Dix, Abbé Passaglia, Jardin des Plantes, Empress of India, Prince Alfred, and Mrs. W. Holborn. Mr. Slade had a stand of six blooms of Gluck, clear yellow, very fine indeed. Then there were also stands of the Anemone-flowered kinds, singular-looking from the quilled centres with an outer edging or fringe of flat florets, and yet showy notwithstanding. Of new kinds but two were shown—one by Messrs. E. G. Henderson & Son (who have this season been very successful with the exhibition of Chrysanthemums), named White Princess, pure white, a large and full incurved flower, to which a first-class certificate was awarded; and Mrs. Heale, a kind of brownish pale red, also a good incurved flower, shown by the Secretary, Mr. W. Heale.

In a group of fine-foliaged plants shown by Mr. Tanton, of Epsom, was a splendid specimen of *Cyperus alternifolius variegatus*, beautifully variegated and well grown. The group from Messrs. E. G. Henderson & Son, of their pretty Grass, *Poa trivialis argentea*, was a pleasing speciality also. It promises, if hardy enough, to be a very valuable addition to our ornamental bedding plants.

Apples were plentifully produced, and considering the season wonderfully fine. The six dishes of table Apples for flavour, shown by Mr. Webb, of Calcot, Reading, were of surpassing quality. The sorts were Court Pendu Plat, Scarlet Pearmain, Ribston Pippin, Old Pomeroy, King of the Pippins, and Fearn's Pippin, all richly coloured. The King of the Pippins was very handsome indeed. Generally this variety was shown very fine; so were the Blenheim Pippins, which, though not so large as in previous years, were excellently coloured; some Blenheims, shown by Mr. Sydney Ford, of Horsham, were grand examples. Pomme de Neige, a crimson-streaked Apple, was a nice-looking fruit; so were the Cockle Pippins shown by Mr. Ford, and there were likewise some good specimens of Adams's Pearmain. Mr. Turner, of Slough, furnished fine fruits of Grenadier, Hanwell Souring, Dumelow's Seedling, Cornish Aromatic, Braddick's Nonpareil, Frogmore Golden Pippin, a shorter and broader fruit than the old kind, fine Golden Noble, Cox's Orange Pippin, as only Mr. Turner can colour it, Lord Derby, Alfriston, Reinette du Canada, Cellini Pippin, Frogmore Prolific, Cox's Pearmain, and Dutch Mignonne. In a collection shown by Mr. Webb there were fine fruits of some of the foregoing, and, in addition, Royal Russet, General Havelock, Hollandbury, and Emperor Alexander. Mr. Turner also furnished a very interesting collection of Pears, containing the following among others:—Vicar of Winkfield, Beurré Clairgeau, Ne Plus Meuris, Chaumontel, Prince Albert, Marie Louise, Epine Dumas, Winter Crasanne, Jean de Witte, Reine d'Hiver, and fine specimens of the old Swan's Egg.

Referring again to Apples, Mr. Webb's six dishes of kitchen fruit comprised Hollandbury Pippin, Emperor Alexander, Wellington, Blenheim Pippin, Reinette du Canada, and Kentish Fillbasket. It is not too much to say that they were of enormous size. Other sorts shown in this class were Warner's King, New Hawthornden, Hall Door, Holland Pippin, a variety very like Blenheim Pippin, Large Russet, Tankard, Wadhurst Pippin, Winter Codlin, Minchall Crab, and Norfolk Beefing. In the class for a single dish of table Apples for flavour the following were produced:—Ribston Pippin, Cox's Orange Pippin, Fearn's Pippin, Braddick's Nonpareil, Trumpington, Stone Pippin, Margil, Lord Nelson, Blenheim Pippin, and King of the Pippins.

In the class for six dishes of dessert Pears some remarkable fruit from trees

in an orchard-house were shown by Mr. Geo. F. Wilson, of Wandsworth—viz., Glou Morceau, Doyenné Goubault, Triomphe de Jodoigne, Beurré d'Anjou, Chaumontel, very fine, and Winter Nelis. The following Pears were also very good:—Forelle or Trout Pear, a very high-coloured fruit, Joséphine de Malines, Glou Morceau, Beurré Diel and Beurré de Capiaumont, both very fine, and Vicar of Winkfield. The following dessert Pears were shown in the class for one dish, flavour being the point of merit:—Van Mons Léon le Clerc (these were very fine, from Mr. Kaile, of Ripley), Marie Louise, Chaumontel, Beurré Diel, Duchesse d'Angoulême, and Knight's Monarch shown by Mr. Turner, of Slough. The palm was awarded to Marie Louise. Some very fine baking Pears came from Mr. J. H. Mortimore: they were Verulam, Catillac, and Uvedale's St. Germaines.

Pine Apples were very fine, especially some from Gunnersbury Park, shown by Mr. Forsyth. He had a splendid Charlotte Rothschild and three fruits of the Smooth-leaved Cayenne. Gunnersbury has long been famous for its Pines, and its ancient reputation was fully sustained here.

Black Grapes were represented by Barbarossa, Esperione, Dutch Hamburg, Alicante, finely-coloured, Black Prince, very good Lady Downe's, West's St. Peter's; Mill Hill, Black, and good bunches of Muscat Hamburgs. The Black Prince and Alicante were from Messrs. H. Lane & Son, of Berkhamstead. Talk of White Grapes! it was worth a long journey to the Guildhall to see the really magnificent bunches of Muscat of Alexandria, shown by Mr. W. Meads, gardener to R. Currie, Esq., Minley Manor, Farnborough. The three bunches weighed 12 lbs. 2 ozs. Not only was the colour all that could be desired, but there was such a rich bloom on them as well, while the berries were large, full, and even-sized. Of other White Grapes Messrs. Lane & Son had Raisin de Calabre, very fine; Buckland Sweetwater, remarkably well-coloured, though the berries were of uneven size; Trebbiano, very fine, but not well ripened; fine Bowood Muscats, some monster bunches of Chavoush, and some long but lanky bunches of the new Grape Duchess of Buccleuch, which is said to possess an exquisite flavour, but the berries were very small indeed. Mr. Webb, of Reading, had a basket of seedling Black Grapes, grown and ripened on an open wall without the aid of artificial heat, both well ripened and coloured.

As usual there were some et-ceteras, but nothing of very great note. The Show proved a great success, a very gratifying fact seeing that it was for the benefit of the benevolent fund in connection with the United Horticultural Society.

R. DEAN.

TOMATO CULTURE.

TOMATOES, or Love Apples as they are sometimes called, are in great demand in most large establishments, and may be grown successfully in various ways, but every gardener has not the requisite means at command to secure a supply for six or eight months out of the twelve. Moreover, as the past summer has been a very unfavourable one for ripening the fruit in the open air, as recommended by Mr. J. Webster, at page 57 of the last volume of the *FLORIST AND POMOLOGIST*, some account of the mode of cultivation which I pursue may prove useful to your readers.

The variety which I have grown for the last ten years is Powell's Dwarf Red, which I obtained from Mr. C. Turner, of Slough, and I keep it true by propagating it by cuttings instead of by seeds. I also prefer plants from cuttings, because they come into bearing very much sooner than seedlings, and are shorter-jointed. I fill two or three 32-sized or six-inch pots with cuttings about

the last week in August or the first week in September, and if placed in a greenhouse along with other cutting-pots, no plant that I know is more easily struck or wintered than the Tomato.

As soon as forcing is commenced, which is about the 1st of February, I pot off the plants into 48-pots, and grow them on; at the same time their tops are taken off to make some more cuttings, which, if placed in a house or pit with a temperature of 50° or 60°, will soon make nice plants to succeed those struck in autumn. The latter I shift on from 48's to 24's, using plenty of rotten dung and road sand, and as soon as the plants have filled the 24-pots with roots I shift into No. 1-sized pots, using about 2 inches of turf for drainage and the same soil as that employed for the last shift, potting them as firmly as possible. I set the pots on the flue in the forcing-house, and train the plants to wires or stakes as most convenient. After the plants have filled their pots with roots, growth will be very much strengthened by watering twice or thrice a-week with liquid manure, as the Tomato is a very gross feeder. At the same time they may have a mulching of about 3 inches of rotten dung placed over the soil in the pots, which keeps the roots cool and moist.

By the above mode of cultivation I have been able to keep the family pretty well supplied throughout the summer, as well as during the spring months; but of the plants upon the open walls scarcely any ripened fruit, for they suffered from disease worse than the Potato, and this is not surprising considering how much more the Tomato is exposed to the atmosphere than the tuber of the Potato, which is under ground.

In 1865 I ripened a large quantity of fruit in the open air on a south border by training the plants to stakes 5 feet from the wall, and as soon as they reached the top of the stakes, which were 3 feet above the ground, I began to cut away some of the small fruit as well as a portion of the leaves. In whatever way the Tomato is grown, success in a great measure depends on the thinning of the fruit and foliage, so as to admit both the sun and air to the fruit to colour it.

Elsenham Hall Gardens.

WILLIAM PLESTER.

ON THE SEEDING OF CONIFERS.—No. 3.

PINUS INSIGNIS, PATULA, AND PSEUDO-STROBUS.

PINUS INSIGNIS is one of the most lovely and distinct free-growing Pinuses, and has beautiful deep grass-green leaves. Its leading shoots here make a growth of from 2 to 4 feet in length in a season, and the tree is branched to the ground. The cones are produced in clusters of from two to six, and adhere closely to the wood. They are large, heavy, from 4 to 6 inches long, broadest a little below the middle, of a light brown colour, smooth, and shining. Squirrels do them very little injury. The seeds take four years to ripen, counting from the first appearance of the cones.

For many years *Pinus insignis* has produced cones and seeds at this place, and there are specimens from 3 feet to 80 feet high. Many raised from seed of our own saving are 30 feet or more in height, and have also produced cones for several years. The wood with us is very full of turpentine. There is one fine tree here with a stem 11 feet in circumference at 4 feet from the ground. This will give some idea of the growth made in the few years which have elapsed since Douglas first introduced the seed into this country.

PINUS PATULA is a very graceful, handsome tree. The wood is smooth, shining, lead-coloured, and the leaves are long, of a beautiful shining bright green, and have a remarkably fine appearance, especially when the sun plays

on them. The cones are from 3 to 4 inches long, of a pale brown colour, and adhere closely to the wood for several years. The seeds are ripe in the fourth year after the cones appear.

PINUS PSEUDO-STROBUS.—This is a very pretty, neat, bluish grey-coloured, shining Pinus, in the way of *P. excelsa*, but the branches are more dense, slender, and recurving. The cones are nearly of the same colour as those of *P. excelsa*, but not so long nor so much in circumference: in form they are curved. Seed ripens in the second year.

Bicton.

JAMES BARNES.

NEW ROSES.

THE French horticultural publications contain several descriptions of new Roses, and the growers' catalogues many more. Of course, a large proportion may be expected, as usual, to prove of inferior merit. This English rosarians well know to their cost. The following are some of the new varieties; but it may be well to observe that the properties ascribed to them rest on the authority of the raisers, except in some instances, where the descriptions are taken from the above publications:—

M. Rolland, of Orange, sends out two—viz., *Clothilde* and *Aurore*.

Clothilde is said to be vigorous and very free-flowering, with very large flowers, which are sometimes white with a bright rose-coloured centre, sometimes rose or salmon, and occasionally exhibiting a mixture of all these colours. It is a Tea Rose, and is stated to have been raised from *Bougère*.

Aurore is of the same origin; it has the flowers of a Tea Rose, with the wood and foliage of a Hybrid Perpetual. The flowers are large, very full "rose aurore." At present it is said to be not very perpetual; but if pinched shortly before the flowers open new buds are produced in a few days.

M. Eugène Verdier has ten Hybrid Perpetuals of his own raising, the names of which are:—

Comte Litla.—Flowers about 4 inches in diameter, full, well formed, with very large petals, velvety purple, shaded with fiery red, and bordered with violet. Magnificent colour.

Jules Calot.—Flowers 3 inches in diameter, in clusters of from ten to fifteen, full, of very good form, and standing well out, bright carmine, deeply edged with blush.

Madame George Paul.—From 4 to 4½ inches in diameter, full, imbricated, of fine form, with large rounded petals, lively deep rose, much shaded, and deeply edged with blush.

Madame la Baronne Haussmann.—Flowers 3½ inches in diameter, well formed and full, bright carmine.

Madame la Baronne Maurice des Graviers.—Rather more than 3 inches in diameter, well formed, full, and showing well, bright cherry red shaded with rose and carmine, reverse of the petals blush.

Madame la Comtesse de Turenne.—Plant very vigorous; flowers 4 inches in diameter, full, flat, imbricated, delicate flesh with a bright centre.

Mademoiselle Annie Wood.—Plant very vigorous; flowers about 4 inches in diameter, very full, perfectly imbricated, fine clear red.

Mademoiselle Eleanor Grier.—From 4 to 4½ inches in diameter, beautifully formed and full, lively rose. A remarkable variety, bearing considerable resemblance to a fine Provence Rose.

Napoleon III.—Flowers 4½ inches in diameter, in clusters of from three to six, full, splendid in colour, combining bright scarlet with a dark slaty violet. A first-rate and most effective variety.

Velours pourpre. — Flowers $3\frac{1}{2}$ inches in diameter, full, bright velvety crimson, shaded with dark brown, scarlet, and violet.

The principal Hybrid Perpetuals of other growers are:—

Alba carnea (Touvais).—Medium sized, full, and very well formed, white, slightly tinged with rose, reverse of the petals pure white.

Antoine Ducher (Ducher).—Raised from Madame Domage; flowers very large, full, and well formed, bright red. Plant very vigorous.

Aspasie (Touvais).—Large, very full, flat, clear red, with a bright crimson centre.

Berthe Chanu (Fontaine).—Large, full, imbricated, bright rosy carmine.

Capitaine Paul (Boyau).—Large, full, bright red.

Charles Verdier (Guillot père).—Raised from Victor Verdier. Plant very vigorous; flowers very large and full, well formed, beautiful rose colour, edged with blush.

Claire Renard (Oger).—Large and full, cupped, bright rose.

Comtesse de Vallier (Damaisin).—Medium-sized, well formed and full, lively deep violet purple, shaded with a blackish hue.

Docteur Larrey (Moreau-Robert).—Large, globular, and full, vinous red, shaded with carmine.

Eugène Scribe (Gautreau).—Large, well formed and full, fiery red,

Felix Genero (Damaisin).—Large, full, and of fine form, beautiful violet rose.

RED ASH-LEAVED KIDNEY POTATO.

WE grew here a Potato this season with the above name, and I presume that it is the identical kind mentioned in last month's FLORIST AND POMOLOGIST by your highly valued correspondent, the Rev. Mr. Radclyffe. A better flavoured more prolific Potato we had not in the garden, although we planted about twenty distinct kinds. It is remarkably short in the haulm, and may be safely planted much more thickly than Potatoes generally are. For gardens of limited extent I strongly recommend this kind. I only found a very small percentage of diseased ones: this is a most important point to all growers of Potatoes. With us it was not quite so early as the old Ashleaf, but this is of minor importance when all its other good qualities are taken into consideration.

Wrotham Park.

JOHN EDLINGTON.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

November 6th.—A very interesting feature of this meeting was a collection of branches of hardy fruiting shrubs and trees from the gardens of the Society, consisting of nine varieties of *Cratægus*, the most showy-looking being *C. coccinea*, having large, round, bright crimson fruit, and *C. aronia*, with large yellow fruit; four varieties of *Cotoneaster*; the common Yew; *Arbutus*; *Snowberry*; *Berberis asiatica*, with oblong red fruit; Biggs's Everlasting Crab, with large reddish orange fruit; the common Privet; *Arum zebrinum*, furnished with compact heads of orange-coloured fruit; and *Phytolacca decandra*, also producing close heads of Blackberry-like fruit. From Messrs. J. & C. Lee came cut specimens of *Schizostylis coccinea* from the open ground, with rich, saucer-shaped, crimson-scarlet flowers freely produced on spikes. Should it prove hardy this will be an invaluable autumn or winter-flowering plant for the open ground. It is also well adapted for cultivation in pots. From Messrs. E. G. Henderson & Son came a number of plants of the beautiful silvery-

leaved Grass, called *Poa trivialis argentea elegans*. This has hitherto been known under the wrong name of *Cynosurus cristatus foliis variegatis*, a name under which it received a first-class certificate; now, however, that it has flowered it proves to be a *Poa*, and will henceforth bear the name just quoted. From James Bateman, Esq., of Biddulph Grange, Congleton, came cut blooms of *Clematis Jackmanni*, from the open air, to show its hardy character. It is a most valuable hardy out-door creeper; it flowers very freely and very late; the flowers are of a violet-purple colour. From Mr. Forsyth, of Gunnersbury, came a very handsome fruit of the new Charlotte Rothschild Pine, weighing 9 lbs., and two fruits of the Smooth-leaved Cayenne, each 7 lbs. weight. From Mr. Downing, gardener to T. Grissell, Esq., of Norbury Park, Dorking, came some fruits of the Pomegranate, which were, however, scarcely ripe. It would appear that the fruit has scarcely, if ever, ripened before in England; but these have been ripened under glass without heat. Some fruits, much finer and better ripened, were shown by Mr. Downing last year. From the same came very fine examples of the following Apples:—Gloria Mundi, Emperor Alexander, Blenheim Pippin, finely coloured, Wellington, Warner's King, and Alfriston. From Mr. John Cox, of Redleaf, came splendid Beurré Clairgeau Pears. From Mr. W. Melville, of Dalmeny Park, came specimens of a Grape called Champion Frontignan, which was not considered so good as the Muscat Champion raised by him some time ago. From Mr. Taplin, of Chatsworth Gardens, came Mangoes; and from the Rev. George Kemp examples of Royal Muscadine Grapes, ripened out of doors. Messrs. Veitch & Son had a quantity of Beets from their trial ground, consisting of Veitch's Dwarf Dark Red, a sort that grows very much to top; Dewar's Dwarf Short-top Red, the roots of which are very handsome, the flesh being also of a good colour; two hybrid varieties, shown as Nos. 2 and 3, both long and coarse-growing sorts, No. 2 being the best flavoured; Winton's, a high-coloured but coarse-growing sort, with a great deal of top; Nutting's Dwarf Red, an extremely good stock, roots long but thick; Cattell's Crimson, a long tapering root, very thin; Pine Apple, a very high-coloured and favourite sort that grows well out of the ground, and produces but little top; White Silesian, like a white Mangold Wurtzel; and the Silver or Sea-kale Beet; the midribs of the leaves of this variety are cooked like Sea-kale. The White Silesian appears to be the Sugar Beet of the Germans, from the roots of which great quantities of sugar are extracted. The leaves can also be used as Spinach.

November 20th.—Three seedling large-flowering Chrysanthemums were produced by Mr. John Salter, to which first-class certificates were awarded:—viz., Countess of Warwick, pale yellow, turning to ivory white with age, a large and full incurved flower; Lady Talfourd, silvery lilac, a fine incurved flower; and Faust, bronzy red, large and full. Mr. Salter also had a rosy lilac sport from the old Cedo Nulli, but without the quilled centre of the original. From Mr. W. Earley, of Digswell, came two Ipomæas, the one having large bright blue flowers with white throat, a very showy stove creeper; the other having crimson tube-shaped flowers. They were considered not to possess any special merit. Mr. Earley also had a new hybrid greenhouse Begonia, *B. phyllomaniaca*, free-blooming, and with more of red in the flowers than *B. Saundersii semperflorens*. Mr. Earley produced examples of Sam Young, Cox's Orange, Fearn's, and King of the Pippins; capital Salsafy and Scorzonera, and examples of Earley's Selected Prize Brussels Sprouts, having stalks about 3 feet long, covered with small sprouts. They had evidently been subjected to very high cultivation. Mr. Ruffett, of Brockett Hall Gardens, had an interesting collection of Apples and Pears, and examples of the Early Black Potato. From Mr. Stewart, of Nuneham Park Gardens, came fine Nuneham Park

Onions, also White Spanish and the Deptford. From Mr. Cox, of Redleaf, came fine Chaumontel Pears; and from Mr. Ingram, of Belvoir, came a new pan for forced Strawberries, described in another page. From Messrs. Veitch & Sons came a collection of Celery of red-stalked kinds. These were Ivory's Nonsuch Red, pronounced by the Committee to be the best; Solid Red; New Red, a large-growing kind; Cole's Defiance Red, and Hood's Dwarf Red. Of whites, Incomparable Dwarf White, pronounced by the Committee to be the best white, but much larger-growing than this sort is generally seen; and Paris Dwarf White, which is evidently the Incomparable Dwarf White. This dwarf white Celery has been grown for a length of time at the Chiswick Gardens under the names of Céleri Turc and Blanc Court Hâtif. Of other whites there were Seymour's White, Cole's Crystal White, and Veitch's Silver White, having more of a yellow tinge in the leafstalks than is generally seen.

R. DEAN.

NEW FANCY PELARGONIUMS.

THE following descriptive list of new Fancy varieties, several of which have been distinguished by first-class certificates during the past summer, will meet the request of "Acme," who asks for information on the subject.

Andromeda (Turner).—White, with veined rose upper petals, lower mottled with lilac.

Beatrice (Turner).—Light flesh colour, blotched and spotted purplish crimson.

Duchess of Buccleuch (Turner).—Delicate lilac, with white throat and edges; fine form and habit.

Gipsy (F. & A. Smith).—Dark crimson upper petals, lower mulberry, crimson belt; good form.

Imperator (Turner).—Blush, upper petals bright lake, lower petals mottled with crimson; large.

Liberty (Turner).—Fiery crimson, with light throat; dwarf habit; a most profuse bloomer.

Marginata (F. & A. Smith).—Upper petals claret, shaded off, lower claret, white centre; good form; free bloomer.

Memnon (Turner).—Bright crimson, with blush centre, lower petals mottled with carmine.

Mirella (Turner).—Vivid rosy lilac, light throat and edges; free bloomer.

Miss Louisa Pyne (F. & A. Smith).—Rosy carmine, with large white centre, and neat white margin; of the finest form; a free bloomer; extra.

Neatness (F. & A. Smith).—Violet carmine, edged with white, lower petals nearly white, with a well-defined spot on each petal; good form.

Oculata (F. & A. Smith).—Violet carmine, edged white, centre white; very free, and of fine form.

Princess Helena (Turner).—White, with purplish rose upper petals, under petals veined with the same.

Sylvia (Turner).—White, with delicate rose upper petals, edged with white, under petals spotted; fine shape.

NEW STRAWBERRY PAN.

It will readily be admitted that in forcing Strawberries it is a matter of the very greatest importance to secure to the plants as far as possible those natural circumstances they enjoy and thrive under in the open borders. To guide us

in the management of the Strawberry when introduced into the forcing-house, we should make ourselves acquainted not only with the circumstances that act favourably and conduce to the highest development of the fruit when grown in the open air; but also with those peculiarities of soil and conditions of climate that exert a prejudicial influence upon it. We find the Strawberry luxuriant and fruitful in rich retentive loams, which afford unfailing supplies of moisture; and weak and unfruitful when grown on poor sandy soils, or where the subsoils are gravelly or open and stony, rendering the supplies of moisture, so much required by the plants from the time of flowering to the maturity of the fruit, failing or uncertain. Strawberries grown in pots and placed in the forcing-house are liable to suffer, even under the best management, from dryness, and occasionally from too much water. To prevent the too rapid drying up of the soil of the Strawberry-pot, and to afford an additional evaporating surface, two plans are called into use. One consists in the employment of slips of turf cut to the width of the shelf and placed upon it, the pots resting directly upon the turf. The other is to place an ordinary shallow pan beneath the Strawberry-pot: the objection to this is that the water passing through the soil of the pot is retained by the pan, and the roots often stand in water. The pan I have invented is not liable to this objection; but in keeping the lower roots cool, and in affording a certain amount of evaporation, it presents the same advantages as the turf, and is superior in convenience.

The pan is made to suit the ordinary 32-sized six-inch pot; it is 4 inches high, $7\frac{1}{2}$ inches in diameter, and it is thus large enough to allow the Strawberry-pot to be placed within it, leaving a space of about an inch all round, which can be filled with sand or soil. The pan has a hole at the bottom, but a circular rim 1 inch in height surrounds the hole, and on this the pot rests. Between the circumference of the pot and the ring there is a space which holds water enough to keep the sand moist if replenished about twice a-week. The obvious advantages of the use of this pan are the greater security of the roots from dryness and the additional evaporating surface afforded by the soil in the pan, which being immediately beneath the foliage, provides a congenial atmosphere for the plant, and this has the effect of keeping down that pest in the Strawberry-pot—red spider.

Belvoir.—(*Gardeners' Chronicle.*)

WILLIAM INGRAM.

NEW BOOK.

The Vegetable World; being a History of Plants, with their Botanical Descriptions and Peculiar Properties. By LOUIS FIGUIER. London: Chapman & Hall, 193, Piccadilly.

WORKS such as the one before us are a pleasing sign that there exists a growing desire for a knowledge of plants and their structure. There was a time not long gone by when botany and vegetable physiology seemed to languish among us; but now the tide seems to have set in afresh in their favour, and there is good reason to hope that they will be more generally studied than ever. The natural sciences are rapidly but surely winning a higher position in our educational schemes, and lessons in the great book of Nature which lies open before us are obtaining the preference over those which are gained from the languages and the literature of peoples which have long since passed from the face of the earth. Without desiring to disparage the classics, it must be confessed that the teachings of science have a utility, a value, and a truth which the former do not possess, however much they claim our respect as a branch of learning. The memory of an ode of Horace, or the whole of Virgil's *Æneid*,

would not teach a Crusoe to prolong his existence on a barren island; but a knowledge of plants might enable to subsist, and a knowledge of mechanics might increase his comforts, or enable him to find the means of escape. We regard, then, with pleasure, works which tend to encourage an acquaintance with science, more particularly those which relate to the delightful study of plants, and such a work is the "Vegetable World." It forms an elegant volume of 576 large octavo pages, and is illustrated with no less than 446 engravings and 24 plates, all of which are most beautifully executed, chiefly from drawings made from nature by M. Faguet, Botanical Illustrator to the Faculty of Sciences of Paris. It is divided into three parts, namely—1st, the Organography and Physiology of Plants; 2nd, the Classification and Natural Families of Plants; and 3rd, the Geographical Distribution of Plants.

In the first division, occupying altogether 192 pages, the various parts of plants and their principal modifications are described in plain language, but with scientific accuracy, and the descriptions are made still more clear by numerous beautiful engravings. The functions of the various organs are also entered into at considerable length; and exhalation, respiration, circulation, fecundation, and germination are well explained.

The following extract relative to respiration will serve as an example of the manner in which the author treats his subject:—

"If we place an entire plant or a leafy branch in a balloon filled with gas which cannot be renewed, and leave the whole in darkness for some ten or fifteen hours, we may assure ourselves at the expiration of this time that the atmospheric air contained in the balloon is no longer of the same composition as before the experiment. Carbonic acid will be there in greater abundance, and the quantity of oxygen will be less. But if in place of leaving the plant in darkness we expose the apparatus to the influence of the sun's rays, the phenomena will be reversed; after a few hours the air in the balloon will have lost a noticeable quantity of its carbonic acid, and will be enriched in its oxygen.

"In order to test this phenomenon, let us fill a bell-glass with water, to which has been previously added a considerable proportion of carbonic acid gas, and place in it a branch or an entire plant covered with leaves; expose the whole to the rays of the sun for some hours. The air, if analysed after the experiment, will be found to contain scarcely any carbonic acid, but it will contain a larger portion of oxygen than before the experiment. If a branch of a plant, with the roots fixed in soil, and consequently in its normal state of vegetation, is placed in a glass vessel, and by means of an air-pump a given quantity of air is caused to circulate round it, this air, which, before the experiment, contained from four to five ten-thousandth parts of carbonic acid, after the apparatus has been exposed to the influence of the sun's rays for a certain time will not be found to contain more than from one to two. If, on the contrary, the experiment is made during the night, it will be found that the quantity of carbonic acid would be increased, and at the expiration of a certain time would have risen to eight ten-thousandth parts. These experiments, in which there is an interchange of gas between the plant and the atmosphere, exhibit the double phenomena of absorption and exhalation in plants; in fact there is respiration. But the respiration of plants is not always the same, like that of animals, in which carbonic acid gas, water, and vapour are exhaled without cessation either by day or night. Plants possess two modes of respiration: one diurnal, in which the leaves absorb the carbonic acid of the air, decompose this gas, and extract the oxygen, whilst the carbon remains in their tissues; the other nocturnal, and the reverse, in which the plant absorbs the oxygen and extracts the carbonic acid—that is to say, they breathe in the same manner as animals do. The carbon which is used by plants during the day is indispensable to the perfect development of their organs and the consolidation of their tissues. By respiration plants live and grow.

"It is necessary to remark here that it is only the green parts of vegetables which respire in the manner described—that is to say, by absorbing carbonic acid and disengaging oxygen under the influence of light. The parts not coloured green, such as the fruit, seeds, red and yellow leaves, &c., always respire in one and the same manner: whether exposed to light or left in darkness, they always absorb the oxygen and disengage carbonic acid. They respire in the same manner as animals. If we consider that the green parts of the plant are far more numerous than those which are otherwise coloured, that the clear light nights of hot countries may rather be said to diminish than to interrupt their respiration,—that the season of long days in northern countries is that of the greatest vegetative activity—we shall be led to the conclusion, that the great mass of plants live more in light

than in darkness, and consequently that their diurnal respiration greatly preponderates over their nocturnal. The diurnal respiration of plants, which pours into the air considerable quantities of oxygen gas, happily compensates for the effects of animal respiration, which produces carbonic acid gas, injurious to the life of man. Plants purify the air injured by the respiration of men and animals. If animals transform the oxygen of the air into carbonic acid, plants take this carbonic acid back again by their diurnal respiration. They fix the carbon in the depth of their tissues, and return oxygen to the air, in reparation.

"Such is the admirable equilibrium which the Creator has established between animals and plants, such the beneficial communication which assures to the air its constant soundness, and maintains it in that state of purity which is indispensable to support the life of the living creatures which cover the globe."

The second division, or that which relates to the classification and natural families of plants, constitutes the major portion of the work, occupying upwards of 300 pages. In this the editor of the translation adopts, and we think not wisely, Dr. Lindley's system as given in his "Vegetable Kingdom," seeing that that of De Candolle is now universally adopted in this country. However, the leading characteristics of the most important natural orders are described, as well as many of the species, and the properties and products of some of these receive a considerable share of attention. Thus in *Papaveraceæ*, after stating the peculiarities of the order, the Opium Poppy is figured and described, and a short account is given of its products; and so on with other natural orders.

The third part, or that which is devoted to the geographical distribution of plants, fills rather more than forty pages, affords a very good idea of the vegetation of different parts of the world, and will be read with pleasure as well as profit.

It is but just to add that the translator has well executed a rather difficult task, and although there are some trivial errors and misprints, for instance in the spelling of the botanical names, the book is a good book, and will be very serviceable to those commencing the study of the subjects to which it relates, and of which it may be made the means of affording a very respectable knowledge.

OUR CONTEMPORARIES.

THE BOTANICAL MAGAZINE for November has plates of the following:—

Brachystelma Barberiæ (Mrs. Barber's *Brachystelma*).—An *Asclepiadaceous* plant discovered by Mr. Bowker (Mrs. Barber's brother) in the valleys of the Isomo river, Kaffirland, but not yet introduced. It has a large depressed tuber, of the size of a Turnip, from which proceeds a very short stem, furnished with spreading, linear-oblong, acute leaves 3 or 4 inches in length. The flowers are collected in a sessile globose capitulum from 4 to 5 inches in diameter, dingy purple, speckled with yellow in the disk. The corolla is five-lobed, an inch across, and the lobes terminate in slender tails, an inch in length, which arch inwards and cohere over the centre of the flower.

Nierembergia rivularis.—A beautiful little species lately introduced from La Plata by Messrs. Veitch, but discovered upwards of thirty years ago by Mr. Tweedie, abounding by the sides of the Plate river within the high-water mark. It has slender creeping stems and nearly sessile flowers, with a broadly campanulate yellowish white limb, borne on a very slender tube from 1 to 2½ inches in length, and of the same colour as the corolla, which is sometimes tinged with rose colour.

Notylia bicolor.—A beautiful but very minute Orchid, discovered by Mr. Skinner in Guatemala, and afterwards by Hartweg on Oak trees in the mountains of Comalapan. The whole plant does not exceed 1½ inch high, has somewhat scimitar-shaped leaves, and slender, graceful, drooping flower-spikes 2 or

3 inches long, and bearing from ten to twenty flowers. These have whitish sepals, and lilac petals and lip. It has been grown for more than twenty years at Knypersley on a small branch of the Cork tree Oak, and flowers profusely in autumn.

Glyphæa Monteiroi.—A Tiliaceous shrub, discovered in Benguela by M. Monteiro. It has large yellow flowers, but not of a sufficiently ornamental character to render its cultivation in our stoves desirable.

Vanda Bensoni.—A species nearly allied to *V. Roxburghii* and concolor, and discovered by Col. Benson in Rangoon. It has long flower-spikes, some of them in its native country being upwards of half a yard long and bearing as many as fifteen flowers. These are about 2 inches across, and have yellowish green sepals and petals marked with numerous reddish brown dots, and a rose-coloured lip.

The subjects of the representations in the FLORAL MAGAZINE for November are :—

Pentstemon Jaffrayanus.—A pretty, easily-cultivated, azure blue kind, introduced by Messrs. Veitch about ten years ago, but not yet so generally known as it deserves to be.

Fancy Pelargoniums Sylvia and *Liberty*.—Seedlings raised by Mr. Turner, of Slough; the former a beautiful delicate pink flower edged with white, the latter rich rosy crimson with a white centre.

Gladiolus Milton.—One of Souchet's varieties, with large creamy white flowers, tinted with rose, flaked with carmine, and feathered with purple.

Alternanthera sessilis amena.—A very dwarf plant with coloured leaves, in which the colours are red, crimson, and olive.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY. — Last month it was stated that the project of holding next year a show at Bury St. Edmunds in connection with that of the Royal Agricultural Society had been abandoned; but though such was then the case, thanks to local effort, and notably to the energy of Mr. D. T. Fish and other members of the local horticultural society, the proposition is now in a fair way of being carried into effect, and on a scale commensurate with the importance of the two great Societies representing the sister arts of Horticulture and Agriculture. The difficulties with regard to securing a suitable place in which to hold the exhibition have been removed by the liberal offer made by Mr. Guy of the use of a field opposite the Agricultural Show-yard, and situated near the Eastgate Street railway station; and should that site not prove in all respects suitable, another can easily be secured. The Royal Horticultural Society, seeing that they would have to spend about £1200, asked for a guarantee of half that amount, and this request has been liberally met, for already a guarantee fund, amounting to upwards of £1000, has been subscribed, and in return one-half of the profits are to be handed over by the Society to the guarantors. The Show, which is to be held in July next, will, it is understood, con-

tinue for four days, and if supported as it ought to be by exhibitors, it can hardly fail to prove a success in a horticultural point of view, whilst the large concourse of visitors which the Agricultural Society's shows invariably attract, will materially add to the receipts; and if this experiment be successful, it may be hoped that the lesson which it will have taught will be turned to advantage by holding from time to time great horticultural shows in the most important towns of the provinces.

An examination of gardeners will be held at the office of the Society at South Kensington, on Tuesday, December 18th, and candidates intending to present themselves must send in their names on or before the 11th of the month. Certificates will be granted to those who obtain the highest number of marks for their answers in practical gardening. A medal will likewise be annually given to the candidate who, having taken a certificate of the Society of Arts in Botany, Floriculture, or Horticulture, shall also gain the highest number of marks in practical gardening. These examinations, of which in future years two will be held annually—namely, one at Lady-day and one at Michaelmas, are open not only to the students at Chiswick, but to all gardeners who obtain

certificates from the Society of Arts for Mensuration, Book-keeping, Practical Geometry, Botany, Floriculture, or Horticulture; also to those who can present a written recommendation from a Fellow of the Royal Horticultural Society, the President of any Floral or Horticultural Association acknowledged by the Society, or the Director of a public park or garden. There are other advantages offered to successful candidates under certain limitations, which it would occupy too much space fully to detail; but further information will be readily afforded on application to the Secretary of the Royal Horticultural Society, to whom, also, intending candidates should send in their names. The holding of such examinations is a step in the right direction, and may be made the means not only of advancing the interests of the successful competitors, but of gardeners as a class.

MANCHESTER NATIONAL HORTICULTURAL SHOW.—The schedule of prizes offered at the great horticultural Exhibition to be held in the Botanic Garden, Manchester, from the 7th to the 15th of June next, is on a liberal scale, the total amounting to £984 10s. For plants the sum of £910 is offered—viz., £485 to be competed for by nurserymen, and £425 10s. by amateurs; for fruit, which is open, only £74 is offered. The prices to be

charged for the admission of visitors not being members of the Manchester Botanical and Horticultural Society, who will be admitted free, are 10s. 6d. on the first day, 2s. 6d. on the second, and 1s. on each of the remaining days.

OBITUARY.

DR. VON SIEBOLD, to whom we owe the introduction of many fine plants from Japan, died at Munich, it is said of typhus, on the 18th of October, at the age of 71.

DON VICENTE CUTANDA, Professor of botany, and Director of the Botanical Gardens at Madrid, died there on the 23rd of July. He was the author of a work on the flora of the province of Madrid, and a member of the Royal Academy of Sciences.

The *Gardeners' Chronicle* also announces the deaths of **PROFESSOR GASPARINI**, of Naples, an eminent botanist, and of **MR. GERRARD**, a zealous naturalist, who died recently in Madagascar of a pestilential marsh fever caught whilst collecting in that island. There, as well as in Natal and other parts of southern Africa, he had made large collections of plants and other natural objects; and in Harvey and Sonder's "*Flora Capensis*," besides many new genera, he added upwards of 150 species.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Stove.—This department should now present a gay appearance with *Justicias*, *Epiphyllums*, *Begonias*, *Eranthemums*, *Bignonia venusta*, *Gesneras*, *Euphorbia splendens*, and various other winter-flowering stove plants. To maintain these in perfection keep the air of the house moderately dry, with a temperature of 60° by night. Some kinds now at rest, and which it is desired to bloom, may be started, ready for potting-on next month. **Orchids.**—Follow out the instructions given last month. Take care that no plant shall be exposed to drip, otherwise it will be sure to suffer.

GREENHOUSE.

Remove all decaying leaves, and attend generally to cleanliness. Afford free ventilation in mild weather, using at the same time a little fire heat. Give no more water than is necessary to preserve the plants in a healthy condition, and apply it in the morning, so that the house may become dry before shutting-up-time. **Cinerarias.**—Give those plants intended for flowering in May their final repotting; they should have plenty of room, and the side shoots should be tied or pegged out as soon as long enough. Never use more heat than is sufficient to keep frost out of the house. **Heaths and Epacrises.**—Give air plentifully

when admissible, and by degrees; so as to avoid draughts. The atmosphere should be now dry—that is, as dry as you can keep it without fire, which should not be allowed, except when the thermometer in the house is likely to fall below 32°. Water with caution. Frequently turn round the best specimens, and attack every appearance of mildew with sulphur. **Pelargoniums.**—Carry out instructions given last month, and tie out the branches, using small neat willow sticks. In this operation care should be taken to form a neat round bush. Commence by tying out the side shoots, and distribute the other shoots at equal distances. Water now but sparingly, taking care not to wet the foliage.

CONSERVATORY.

This should be kept as gay as possible with *Chrysanthemums*, *Epiphyllums*, *Salvias*, *Linum trigynum*, &c. Towards the end of the month, the early-started Roman *Narcissus*, *Hyacinths*, and *Tulips*, will increase the display. Avoid keeping much fire at this season; a moderately dry heat, just excluding frost, will be sufficient. Water in the morning, for the house to become dry by the middle of the day.

FORCING.

Forcing-house.—As the buds swell in the early vinery gradually increase the heat to

55° at night, and, as they break, to 60°; the day temperature should range from 5° to 10° higher than that maintained at night. Keep a damp heat in the early stages, but as the Vines expand into leaf reduce the amount of atmospheric moisture. A gentle current of air should be given on most days, more or less according to the fineness of the weather. *Pines*.—Keep the main stock now dry at the root; we suppose these to be at rest, or nearly so. A moderate temperature, say 58° by night, with an increase of 10° or 15° in bright days, is only necessary. Pines in dung frames must have the necessary heat maintained by fresh applications of heated litter. The early-fruited plants should now be started; gradually increase the top and bottom heat, and in a fortnight's time give a little water. This start will, in all probability, bring them up by Christmas, or soon afterwards.

KITCHEN GARDEN.

Clean and trench up vacant ground, digging it 2 feet deep, and leaving the surface either in ridges or very rough. Dung should be applied to the surface previously, and regularly mixed with the earth in digging. Attend to what crops are in the ground, and sow the first early crop of Peas on a warm border at once, if you wish to have them early, as well as a few Mazagan or Dwarf Fan Beans. A few Radishes or early Horn Carrots may likewise be sown in a very sheltered place, covering the beds with litter till the seeds come up. Look after mice, which are troublesome to the crops. Look over the root-stores.

FRUIT GARDEN.

There will probably be opportunities for proceeding with winter pruning during this month when other work cannot be advantageously carried on. Thin out the heads of standard trees, removing in the first instance dead branches, and then all those which are badly placed and obstruct the free access of air and light. Scrape off moss and rough scaly old bark from the stems; for the former grows at the expense of the trees, and the latter serves as a hiding-place for insects and their eggs. To destroy scale insects apply Gishurst compound at the rate of 8 ozs. to the gallon of water. Shorten the shoots of espalier and pyramid trees so as to secure the development of the buds; likewise the points of the secondary shoots, to favour the formation of fruit-buds. In doing this, however, due attention must be paid to the habit of the variety and the degree of vigour which the individual tree possesses, otherwise barrenness instead of fertility may be the result, in consequence of the energies of the tree being directed towards the formation of shoots instead of fruit-buds. Prune and nail wall trees, and be careful not to encourage too much the more upright-growing branches, and those situated near the top of the tree, otherwise those which have a nearly horizontal

position, or which are situated near the ground, will be apt to die off. When this is the case they are not easily replaced, and valuable wall space is wasted. Proceed with transplanting when the ground is in a favourable condition: if not, better defer planting till it be so. Mulch after planting. Prune, stake, and mulch Raspberry plantations; and now is a good time to spread tan round Gooseberry bushes. A layer spread all over the ground to the depth of 2 inches is the best of all modes of preventing the attacks of the destructive Gooseberry caterpillar. Gooseberry and Currant bushes may now be pruned; it is good work for a frosty day. Unnail Fig trees, tie the branches up in bundles, and protect with mats and straw.

FLOWER GARDEN AND SHRUBBERY.

All that can be done here will be to protect anything left in the ground from frost, and to preserve neatness and order. Planting deciduous trees and shrubs may be done in mild weather.

FLORISTS' FLOWERS.

Auriculas.—Very little water and plenty of air will be the principal points to attend to this month, beyond keeping the plants clean both of dead foliage and green fly. If the soil become green on the surface it should be loosened, but not so deeply as to disturb the root. Should we get severe frosts a slight covering will be necessary at night. *Carnations and Picotees*.—Keep the pits or frames containing these plants as open as possible. If they have only lights over them, without protection at the sides till Christmas, so much the better. The plants will require water but very seldom, there being sufficient moisture in the atmosphere at this season. Too much moisture and not sufficient air are sure to be injurious; the spot will be the result of such treatment. The plants will now require looking over, cutting away all decayed foliage. *Dahlias*.—Examine the roots of choice kinds occasionally, to see they are not rotting at the stem; if so it will be best to cut away the part affected, and to dry the root, if at all damp. Much depends, however, on the convenience at command for wintering them; under the stage of a greenhouse is most general, but here it is often too damp; neither should they be placed in a situation that is too airy, as many kinds will dry up. They must be placed beyond the reach of frost. Seed will keep best in the chaff after it is thoroughly dried. *Pansies*.—Those in pots must have plenty of light and air; the lights should be taken quite off at every favourable opportunity. The cuttings striking should not have much water, or they are liable to damp off. *Tulips*.—These being now safely under the soil, there will be but little labour for two or three months to come. The beds may be exposed to any weather, with the exception of very heavy rains.

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